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**INTERNATIONAL UNION AGAINST
TUBERCULOSIS.**

**TRANSACTIONS
OF
SECOND
INTERNATIONAL CONFERENCE**

London, 26th—28th July, 1921

London

**ADLARD & SON & WEST NEWMAN, LTD.
BARTHOLOMEW CLOSE, E.C.**

**INTERNATIONAL UNION AGAINST
TUBERCULOSIS.**

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INTERNATIONAL CONFERENCE**

London, 26th—28th July, 1921

**Under the auspices of the British National Association for
the Prevention of Tuberculosis.**

London

**ADLARD & SON & WEST NEWMAN, LTD.
BARTHOLOMEW CLOSE, E.C.**

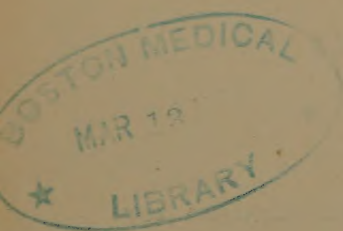
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General Programme.

**List of Delegates from Countries attached to the
International Union.**

**Representatives from British Authorities, Members
of the National Association for the Prevention
of Tuberculosis, and others.**

General Programme.

FIRST DAY.

TUESDAY, 26TH JULY,

10.30 a.m.

OPENING OF CONFERENCE.

(In the Great Hall of the Institution of Civil Engineers.)

THE CHAIR taken at 10.30 a.m. by the President of the Conference,
Professor Sir ROBERT PHILIP, M.D., LL.D., Edinburgh.

WELCOME by HIS MAJESTY'S SECRETARY OF STATE FOR FOREIGN
AFFAIRS, The MARQUIS CURZON OF KEDLESTON, K.G.

WELCOME by HIS MAJESTY'S MINISTER OF HEALTH, the Right Hon.
Sir ALFRED MOND, Bart.

PRESENTATION OF DELEGATES.

ADDRESS by Monsieur LE SENATEUR ANDRÉ HONNORAT, late member
of the French Government, Representative of France.

ADDRESS by Colonel GEORGE E. BUSHNELL, United States Army,
Representative of the United States of America.

WELCOME by the Hon. Sir ARTHUR STANLEY, G.B.E., on behalf of
the National Association for the Prevention of Tuberculosis.

Afternoon—3 p.m.

(In the Lecture Theatre of the Institution of Civil Engineers.)

MEETING OF COUNCIL OF INTERNATIONAL UNION.

(Members of International Union only.)

Consideration of Constitution and Statutes of the International Union.

Other business.

Afternoon—5 p.m.

(In the Lecture Theatre of the Institution.)

ANNUAL MEETING OF THE NATIONAL ASSOCIATION FOR THE PREVENTION
OF TUBERCULOSIS.

(Open to all.)

Chairman.—The Hon. Sir ARTHUR STANLEY, G.B.E.

Chairman of Council of the National Association.

Presentation of the Annual Report.

Other formal business.

ADDRESS on "The Protection of Children against Tuberculosis with
Special Reference to the Grancher System," by Dr. ARMAND DELILLE,
Paris.

SECOND DAY.

WEDNESDAY, 27TH JULY.

Morning—10.30 a.m.

(In the Great Hall of the Institution.)

Discussion on

"THE MODES OF DIFFUSION OF TUBERCULOSIS
THROUGHOUT THE RACES OF THE WORLD."

Opened by

PROFESSOR CALMETTE, Pasteur Institute, Paris.

Afternoon—3 p.m.

(In the Great Hall of the Institution.)

DISCUSSION ON "THE MODES OF DIFFUSION OF TUBERCULOSIS
THROUGHOUT THE WORLD"—*continued.*

REPORTS REGARDING THE PROGRESS OF TUBERCULOSIS CAMPAIGN
IN DIFFERENT COUNTRIES.

*(Short Statements of not more than five minutes' duration from representatives
of the countries included in the International Union.)*

Afternoon—5 p.m.

(In the Lecture Theatre of the Institution.)

MEETING OF COUNCIL OF INTERNATIONAL UNION.

(Members of International Union only.)

Consideration of Constitution and Statutes of the International Union.

Other Business.

THIRD DAY.

THURSDAY, 28TH JULY.

Morning—10.30 a.m.

(In the Great Hall of the Institution.)

Discussion on

“THE RÔLE OF THE MEDICAL PROFESSION IN THE
PREVENTION OF TUBERCULOSIS.”

Opened by

SIR HUMPHRY ROLLESTON, K.C.B., M.D., London,

AND

SIR GEORGE NEWMAN, K.C.B., M.D., Ministry of Health.

Afternoon—3 p.m.

(In the Lecture Theatre of the Institution.)

FINAL MEETING OF COUNCIL OF INTERNATIONAL UNION.

(Members of International Union only.)

Constitution and Statutes of the International Union.

Reports of Committees.

Date of next International Conference.

Place of Meeting.

Appointment of Office Bearers.

FOURTH DAY.

FRIDAY, 29TH JULY.

Excursions and Visits to Institutions of Interest.

WHOLE-DAY EXCURSIONS.

The following whole-day excursions to institutions of interest on Friday, 29th July.

- (1) BROMPTON SANATORIUM, Frimley, with lunch at the Sanatorium.
 - (2) ALTON HOSPITAL FOR TUBERCULOSIS (other than Pulmonary), with lunch at the Sanatorium.
 - (3) PRESTON HALL TRAINING COLONY FOR TUBERCULOUS EX-SERVICE MEN, with lunch at the Colony.
 - (4) CAMBRIDGE, AND PAPWORTH COLONY FOR TUBERCULOSIS, with lunch at Cambridge or at Papworth.
 - (5) NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING, Reading (luncheon), and BERKS AND BUCKS JOINT SANATORIUM, Peppard (afternoon tea).
-

SHORTER VISITS.

Visits to any of the following on presentation of Member's Card:

- (1) Any of the LONDON HOSPITALS, special or general.
- (2) QUEEN MARY'S HOSPITAL FOR TUBERCULOUS CHILDREN, Carshalton (morning or afternoon).
- (3) COLINDALE HOSPITAL FOR ADVANCED CASES, Hendon, N.W. (morning or afternoon).
- (4) ST. MARYLEBONE INFIRMARY (Tuberculosis Wards), Rackham Street, Ladbroke Grove, N.W., at 4.30 p.m. (afternoon tea).
- (5) HARPENDEN SANATORIUM (National Children's Home and Orphanage).
- (6) TUBERCULOSIS DISPENSARIES, of which one (or more) exists in each Metropolitan Borough.

Entertainments.

- (1) DINNER TO INTERNATIONAL DELEGATES given by the President, SIR ROBERT PHILIP, in Claridge's Hotel, on Monday, 25th July, at 8 p.m.
- (2) LUNCHEON GIVEN TO INTERNATIONAL DELEGATES by His Majesty's Government on Tuesday, 26th July, at 1 o'clock.
- (3) EVENING RECEPTION to all Members of the International Conference by THE RT. HON. THE LORD MAYOR AND LADY MAYORESS in the Mansion House on Tuesday, 26th July, from 9 to 11 p.m.
- (4) EVENING PARTY given to the Members of the International Conference by LADY ST. HELIER at 52, Portland Place, W., on Wednesday, 27th July, at 9.30 p.m.
- (5) LUNCHEON TO INTERNATIONAL DELEGATES given by Dr. NATHAN RAW, M.P. in the House of Commons on Thursday, 28th July.
- (6) AT HOME given by the TREASURER OF ST. THOMAS'S HOSPITAL in the Nightingale Training School, on Thursday, 28th July, at 5 o'clock.

List of Delegates from Countries attached to the International Union.

Argentina.

Dr. Alfaro.
Dr. Raul Bergara (Representing the Consul for the Argentine, London).
Dr. Roberto Murphy.

Australia.

Dr. Gordon Craig.
Dr. I. Jones.
Dr. Kellaway.
Mr. Mackay.
Major E. W. Morris.
Lt.-Col. Perrin Norris.
Dr. Camac Wilkinson.
Prof. J. T. Wilson.

TASMANIA :

Mr. H. W. Ely.

VICTORIA :

The Hon. J. P. Jones, M.P.

NEW SOUTH WALES :

Dr. R. H. Todd.

Austria.

His Excellency Herr Frankenstein (Austrian Minister, London).

Belgium.

Mr. Antoine de Clercq (Vice-Consul for Belgium, London).
Dr. Derscheid.
Dr. E. Dewez.
Mr. Charles Maskens (Chargé d'Affaires, Representing the Belgian Ambassador, London).

Canada.

Prof. Jonathan Meakins.

China.

Mr. Chao-Hsin Chu (Representing the Chinese Minister, London).
His Excellency Monsieur Hia Chouen Keng (Chinese Minister in Paris).
Dr. P. W. Lamb (Representing the Chinese Consul, London).
Dr. Siah.

Colombia.

His Excellency Ignacio Gutierrez Ponce, M.D., M.R.C.S. (Colombian Minister, London).
Dr. Zamora.

Cuba.

His Excellency General Carlos Garcia Velez (Cuban Minister, London).

Czecho-Slovakia.

Prince Max Lobkowicz (Representing the Czecho-Slovak Minister, London).
Dr. Hynek Pelc.
Dr. F. Pavlísek (Czecho-Slovak Consul, London).

Denmark.

Mr. Tage Bull (First Secretary Danish Legation, London).
Prof. Knud Faber.

Finland.

Dr. Norrgren (Consul-General for Finland, London).

France.

His Excellency Count B. de
Saint Aulaire (Ambassadeur
de France, London).
Dr. Charles Ardoin.
Prof. Léon Bernard.
Prof. Bezançon.
Monsieur le Vicomte de Bon-
neval.
Dr. Brébion.
Prof. Albert Calmette.
Dr. Cavaillon.
Dr. Claisse.
Prof. Courmont.
Dr. P. F. Armand Delille.
Prof. Guillon.
Dr. Louis Guinard.
Dr. Hervé.
Monsieur le Sénateur Honnorat.
Dr. Henri Labbé.
Dr. Paul Menget.
Dr. Oddo.
Dr. le Page.
Mademoiselle la Baronne Amé-
lie de Pitteurs.
Dr. Gaston Poix.
Dr. Mademoiselle Yvonne de
Pouzin.
Prof. Rénon.
Dr. Edouard Rist.
Dr. A. Rosset.
Dr. de Verbizier.

Great Britain.

The Marchioness of Aberdeen
and Temair.
Dr. T. D. Acland.
Mr. John Anderson, J.P.
Dr. Noel Bardswell, M.V.O.
Miss Broadbent.
Katharine Countess of Cromer.
Mrs. Marcus Dimsdale.
Dr. H. E. Dixey, D.L.
Capt. W. E. Elliot, M.P.
Sir Henry Gauvain, M.D.
The Lady Glenconner.
Sir Percival Hartley, C.V.O.,
M.D.
Dr. H. W. McConnel.
Miss E. J. McGaw.
Dr. Hector Mackenzie, F.R.C.P.
Dr. F. N. K. Menzies.

Great Britain—continued.

Mr. Arthur C. Pain.
Dr. J. J. Perkins, F.R.C.P.
Prof. Sir Robert Philip, M.D.,
LL.D., Pres. R.C.P.E.
Miss Price.
Dr. Nathan Raw, C.M.G., M.P.
Mr. G. Reeves-Smith.
The Hon. Sir Arthur Stanley,
G.B.E., C.B., M.V.O.
The Hon. Mrs. Stirling of Keir.
Sir StClair Thomson, M.D.,
F.R.C.S.
Dr. Cecil B. Wall.
Dr. H. de C. Woodcock.
Prof. Sir German Sims Wood-
head, K.B.E., M.D., LL.D.
Mr. H. L. Woolcombe.
Sir William Younger, Bart.

Greece.

His Excellency Monsieur A.
Riza Rangabé (Greek Minis-
ter, London).
Dr. Alexandre Cawadias.

Guatemala.

His Excellency Dr. Don Manuel
Arroyo (Minister for Guate-
mala, London).
Dr. Don José Azurdia (Consul
General for Guatemala,
Liverpool).

Haiti.

Dr. A. Casséus (Counsellor de
la Legation d'Haiti, Paris).

Holland.

Jonkbeer Dr. R. de Marees van
Swinderen (Dutch Minister).
Prof. Dr. W. Nolen.

India.

Lt.-Col. F. G. Hutchinson,
I.M.S.

Italy.

His Excellency Signor di San
Martino (Italian Ambassa-
dor, London).
Prof. Vittorio Ascoli, Rome.
Conte Guglielmo de la Feld.
Prof. Pio Foà (Senatore del
Regno, Turin).

Japan.

Mr. Nagai (representing the Japanese Ambassador, London).
Mr. S. Yokoyama.

Liberia.

Mr. C. W. Dresselhuys (Secretary of Legation, London).

Monaco.

Dr. Ferdinand Louët.

New Zealand.

Dr. I. C. Macintyre.
Dr. R. H. Makgill.

Norway.

Prof. Francis Harbitz.
Mr. Th. G. Thorsen (Norwegian Legation, London).

Panama.

Dr. Raoul Amador (Chargé d'Affaires, Paris).

Paraguay.

Senor G. Tirado (Consul-General, London).

Persia.

Dr. Loghmanol-Molk, Persia.
Dr. Hechmatos-Saltaneh, Persia.
Dr. O. Amrein.

Peru.

Señor Oscar V. Salomon (Consul-General for Peru, London).

Poland.

Monsieur Komierowski (Acting Consul-General, London).

Portugal.

Monsieur José de Almeida.
Dr. G. Neves.

Roumania.

Prof. Irimescu.

Serbs, Croats and Slovenes, Kingdom of the.

Monsieur Karovich (First Secretary of the Legation, London).

South Africa.

Dr. Jasper Anderson.
Dr. L. G. Haydon.

Spain.

His Excellency Senateur Espina Y Capo.

Sweden.

His Excellency Baron Palmstierna (Swedish Minister, London).
Prof. Dr. Gustave Bergmark.
Monsieur C. Cedercrantz.
Sven M:son Lagerberg (Acting Consul-General, London).
Dr. Alfred de Rosen.
Dr. Hening Waldenström.

Switzerland.

His Excellency A. R. Paravicini (Swiss Minister, London).
Dr. Amrein.
Dr. Bachmann.
Dr. Burnand.
Dr. Jaquerod.
Dr. Neumann.

United States of America.

Colonel Bushnell.
Dr. Landis.
Mr. Irving Linnell (Consul-in-Charge, London).
Dr. Ray Matson.
Dr. Charles Minor.
Dr. Pollak.
Dr. Longstreet Taylor.
Dr. Gerald Webb.
Dr. Linsly Williams.

Uruguay.

His Excellency Don Federico
R. Vidiella (Minister for
Uruguay, London).
Monsieur Le Professeur Fran-
cisco Soca.

Venezuela.

Dr. E. Tejera.
Dr. Mendez y Llamoz.

League of Nations.

Sir Eric Hay Drummond.
Dr. E. J. Steegmann, O.B.E.

League of Red Cross Societies.

Prof. C. A. Winslow, Geneva.
Dr. A. de Peyer, Geneva.

Representatives from British Authorities, Members of the National Association for the Prevention of Tuberculosis, and others.

The following abbreviations used below indicate the authorities represented: B.C. = Borough Council. C. = City, Corporation. C.B. = County Borough. C.C. = County Council. H.C. = Health Committee. P.H.C. = Public Health Committee. T.C. = Town Council.

Aberdeen Medico-Chirurgical Society.

Dr. William Brown.

Admiralty.

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Bond, R.N.

Association for the Prevention of Consumption and Other Forms of Tuberculosis in the County of Salop and the Hundred of Maelor.

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Dr. Robert H. Buchanan.

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Grand Priory of Order of St. John of Jerusalem in England.

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Greenwich B.C.

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Councillor R. Davies.

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Holborn Union.

Mr. Arthur Chapman.

Hull C.

Dr. J. A. Raeburn,
Senior T.M.O.

Huntingdonshire C.C.

The Countess of Sandwich,
C.C.

Institute of Hospital Almoners.

Miss Marx.

Invalid Children's Aid Association.

Miss Broadbent,
Hon. Treasurer.

Ipswich C.B.

Dr. A. M. N. Pringle, M.O.H.

Islington B.C.

Councillor Miss Miriam Price.
Councillor Arthur Campbell.

Kensington, Council of Royal Borough of.

Dr. James Fenton, M.O.H.

King Edward VII Welsh National Memorial Association.

Prof. S. Lyle Cummins.
D. W. Evans.

King's College Hospital Medical School (University of London).

Prof. F. W. Tunnicliffe.

Lambeth B.C.

Dr. J. Priestley, M.O.H.

Lanark County, Middle Ward of, District Committee.

W. E. Whyte, District Clerk
and Treasurer.
Dr. A. H. Macpherson.

Lancashire C.C.

P. J. Hibbert,
or
Dr. C. I. Trimble.
Dr. C. Lissant Cox, C.T.O.

Leeds C.

Alderman Frank Fountain,
J.P.
Councillor Arthur Godfrey.
Dr. H. de C. Woodcock.

Leicester C.

Dr. Wyville S. Thomson,
T.M.O.

Lewisham B.C.

Dr. Rose Jordan, T.O.

Liverpool Child Welfare Association.

Miss Margaret Beavan, J.P.,
C.C.

Liverpool C.

Alderman J. G. Moyles, M.D.
Dr. E. W. Hope, O.B.E.,
or
Dr. H. R. MacIntyre.

Local Government Board for Ireland.

Dr. Norman C. Patrick.

London, City of, Corporation.

Mr. William Leuw.
Mr. William H. Savery, J.P.
Col. Sir Robert Smith, M.D.,
D.L., J.P.
William J. Howarth, C.B.E.,
M.O.H., M.D.

Manchester C. P.H.C.

Alderman W. T. Jackson.
Councillor O'Loughlin.
Dr. D. P. Sutherland.

Margaret Street Hospital Tuberculosis Dispensary.

Dr. J. Campbell McClure.
Dr. Henry A. Ellis.
Dr. David N. Barcroft.

Metropolitan Asylums Board.

W. H. Ecroyd, J.P.
Dr. Lauriston E. Shaw.
Dr. James Watt.

Middlesbrough T.C.

Dr. F. J. Henry.

Middlesex C.C.

Dr. C. E. Goddard, O.B.E.
Dr. J. R. Leeson.
Dr. J. R. McGregor.

Middlesex Hospital.

Dr. R. A. Young.

Ministry of Pensions.

Dr. Alexander Sandison.
Dr. Halliday Sutherland.

Mount Vernon Hospital for Tuberculosis.

Dr. T. N. Kelynack.
Dr. T. D. Lister.

National Association for the Prevention of Tuberculosis.**HEREFORDSHIRE BRANCH:**

Dr. Herbert Jones.

LEICESTER AND LEICESTER-SHIRE BRANCH:

Dr. Reginald Pratt.

NORTHAMPTON BRANCH:

Dr. J. E. Wood.
A. Clifford Towers.

NOTTINGHAM AND NOTTS BRANCH:

E. W. Enfield.

National Baby Week Council.

Dr. Eric Pritchard.

National Council for Combating Venereal Diseases.

Sir Malcolm Morris, K.C.V.O.,
F.R.C.S.E.

National Federation of Women Workers.

Miss A. M. Michelmores.

National Health Insurance Commission, Ireland.

Dr. W. J. Maguire.

National Institute for Research in Dairying, University College, Reading.

Dr. R. Stenhouse Williams.

National Union of Teachers.

C. W. Crook, B.Sc., B.A.

Newcastle-upon-Tyne Corporation Sanitary Committee.

Dr. W. H. Dickinson, O.B.E.,
T.M.O.

Northampton C.

Dr. Stephen Rowland, T.O.

Oldham C.B. H.C.

Squire Dunkerley.
Dr. Hugh Paul, T.O.

Paddington B.C.

Dr. Reginald Dudfield, O.B.E.,
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Paddington Tuberculosis Dispensary.

Miss W. Taylor.

Peamount Sanatorium.

Dr. George Sheehan.

People's League of Health.

Miss Olga Nethersole.

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Dr. F. G. Bushnell, T.M.O.

Poor Law Medical Officers' Association of England and Wales.

Dr. Withers Green.

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Preston C.B.

Dr. James Walker, T.O.

Queen's Hospital, Birmingham.

Dr. Otto J. Kauffmann.

Reading T.C.H.C.

Dr. Geo. S. Abram.
Dr. H. R. Minkley, T.O.

Rochdale T.C.

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 Dr. Fergus Hewat.
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Royal College of Surgeons of Edinburgh.

Dr. John Fraser, M.C.

Royal College of Veterinary Surgeons.

Dr. O. Charnock Bradley.

Royal Colonial Institute.

Dr. A. Cowan Guthrie.

Royal Institute of British Architects.

E. T. Hall, F.R.I.B.A.
 William A. Pite, F.R.I.B.A.

Royal National Hospital for Consumption for Ireland.

Dr. Charles D. Hanan.

Royal Sanitary Institute.

Prof. H. R. Kenwood, C.M.G.
 Prof. John Robertson, C.M.G.,
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 C.M.G.

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Royal Victoria Hospital Tuberculosis Trust.

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 Dr. George M. Robertson.
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Smethwick C.B.

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Society of Superintendents of Tuberculosis Institutions.

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 Dr. Marcus Paterson.
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Yorkshire North Riding C.C.

Dr. J. J. Thomson, Chief
Clinical T.O.

Yorkshire West Riding C.C.

Dr. J. B. McDougall, Chief
T.O.

II.

OPENING CEREMONY

IN THE INSTITUTION OF CIVIL ENGINEERS,

GREAT GEORGE STREET, WESTMINSTER,

ON

TUESDAY, 26th JULY, 1921, at 10 a.m.,

UNDER THE PRESIDENCY OF

Prof. Sir ROBERT PHILIP, M.D., LL.D.,

President of the Royal College of Physicians of Edinburgh ; Corresponding
Member of the Académie de Médecine, Paris ; President of the
International Union against Tuberculosis.

Message from HIS MAJESTY KING GEORGE V.

MESSAGE FROM
HIS MAJESTY KING GEORGE V

TO THE
CONFERENCE OF THE INTERNATIONAL UNION AGAINST
TUBERCULOSIS.

Assembled in London, 26th-28th July, 1921.

"I welcome to my Capital the distinguished representatives of many nations united in a common effort to combat the great scourge of tuberculosis.

"The encouraging success which is already manifest from these co-ordinated efforts in the cause of health leads me confidently to hope that further advances will attend the efforts of the present Congress, in whose work, following the example of my dear father, I take so deep an interest."

REPLY TO THE GRACIOUS MESSAGE OF
HIS MAJESTY KING GEORGE V

BY THE
PRESIDENT OF THE INTERNATIONAL UNION AGAINST
TUBERCULOSIS.

On behalf of the Members assembled in Conference.

"Your Majesty,

"As President of the International Union against Tuberculosis, I have been requested by the members of the International Conference to convey to Your Majesty their most respectful and grateful thanks for Your Majesty's gracious message read to them by Lord Curzon of Kedleston.

"To the delegates of thirty-nine countries assembled in Conference—along with many representatives of Your Majesty's Empire at home and overseas—the words brought encouragement and inspiration.

"Strengthened by the knowledge that we have Your Majesty's sympathy and interest, we shall continue with firm determination and expectation an unceasing warfare against the most universal and deadly scourge of the human race.

"I have the honour to be, Sir,

*Your Majesty's most obedient, humble servant,
R. W. PHILIP."*

OPENING CEREMONY,

26th JULY, 1921.

THE SECOND INTERNATIONAL CONFERENCE OF THE INTERNATIONAL UNION AGAINST TUBERCULOSIS was formally opened on Tuesday, 26th July, 1921, at 10.30 a.m., in the Large Hall of the Institution of Civil Engineers, Great George Street, Westminster, under the Presidency of Prof. Sir ROBERT PHILIP, Edinburgh, President of the International Union.

The President was accompanied on the platform by the Marquis Curzon of Kedleston (H.M. Secretary of State for Foreign Affairs), the Right Hon. Sir Alfred Mond (Minister of Health), the Hon. Sir Arthur Stanley (Chairman of Council of the National Association for the Prevention of Tuberculosis), the French Ambassador, the Italian Ambassador, the Austrian Minister, the Colombian Minister, the Cuban Minister, the Greek Minister, the Guatemalan Minister, the Minister for the Netherlands, the Swedish Minister, the Swiss Minister, the Uruguayan Minister, the Belgian Chargé d'Affaires, Counsellor of the Chinese Legation, Secretary of the Czecho-Slovak Legation, Secretary of the Japanese Embassy, Secretary to the Liberian Legation; the following representing their respective countries: Dr. Raul Bergara (Argentine Republic), Col. Norris (Australia), Dr. Dewez (Belgium), Prof. Meakins (Canada), Dr. Hyneck Pelc (Czecho-Slovakia), Dr. Knud Faber (Denmark), Dr. Norrgren (Finland), M. le Sénateur André Honnorat (France), Prof. Calmette (France), Prof. Léon Bernard (France), the Marchioness of Aberdeen (Great Britain), Sir German Sims Woodhead (Great Britain), Dr. Nathan Raw, M.P. (Great Britain), Dr. J. J. Perkins (Great Britain), Dr. Casséus (Haiti), Dr. Nolen (Holland), Lt.-Col. Hutchinson (India), Senator Pio Foà (Italy), Prof. Ascoli (Italy), Dr. Louët (Monaco), Prof. Wilson (New South Wales), Dr. Makgill (New Zealand), Prof. Harbitz (Norway), Dr. Amador (Panama), Señor Tirado (Paraguay and Peru), Dr. Amrein (Persia), M. Komierowski (Poland), M. José de Almeida (Portugal), Prof. Irimescu (Roumania), M. Karovich (Kingdom of the Serbs, Croates and Slovenes), Dr. Haydon (South Africa), Senator Espina y Capo (Spain), M. Cedercrantz (Sweden), Dr. Jaquerod (Switzerland), Col. Bushnell (U.S.A.), Dr. Webb (U.S.A.),

Dr. Tejera (Venezuela), Dr. E. J. Steegmann (League of Nations), Prof. Winslow (League of Red Cross Societies), and Lord Dawson, Sir Humphry Rolleston, K.C.B., and Sir George Newman, K.C.B.

The Great Hall was fully occupied by delegates from thirty-nine countries attached to the International Union, representatives from British Authorities, Members of the National Association for the Prevention of Tuberculosis, and other interested persons.

The following telegram was received from M. Léon Bourgeois, retiring President of the International Union:

Per Ambassade de France à Londres.

POUR SIR ROBERT PHILIP, Congrès de l'Union Internationale contre la Tuberculose.

Je tiens à exprimer à vous et aux membres de la Conférence expressions profonds regrets pour mon absence malheureusement imposée par l'état de ma santé encore incomplètement remise. Suis heureux que mon éminent collègue Honnorat ait accepté me remplacer.

Veuillez être auprès des représentants du Gouvernement anglais à la Conférence l'interprète de mes excuses personnelles et soyez sûr que je demeure profondément dévoué à la cause que la conférence va défendre sous votre illustre direction.

LÉON BOURGEOIS.

The PRESIDENT (Sir ROBERT PHILIP), in opening the proceedings, said: Your Excellencies, my Lords, Ladies and Gentlemen,—I shall not detain you for the present with a single word, but shall at once ask H.M. Secretary of State for Foreign Affairs, the Marquis Curzon, to convey to the International Conference his welcome on behalf of the British Government. (Applause.)

The Most Hon. The MARQUIS CURZON OF KEDLESTON (H.M. Secretary of State for Foreign Affairs), who was received with applause, said: Your Excellencies, my Lords, Ladies and Gentlemen,—When in April last Sir Arthur Stanley made me promise to attend the opening meeting of the International Union against Tuberculosis, to be held in London at the end of July, and to address to you some words of welcome, I did not anticipate that at this date I should have four international episodes or crises upon my hands, absorbing every moment of the time of the Foreign Office and rendering the discharge of my other obligations well-nigh impossible. However, I see that my friends the Ambassadors, with whom I am called upon daily to discharge this necessary duty, have taken a

holiday, as I have, and here we are upon the platform to welcome you to-day. (Applause.) You must excuse me, in these circumstances, if I do not deliver the address which Sir Arthur Stanley desired me to undertake, and if I confine myself to the narrower but still agreeable task of an official welcome. I should indeed not have excused myself had I missed the opportunity thus afforded me of saying that the distinguished men who are here assembled are engaged, just as much as any Foreign Office in this or other countries, in endeavouring to restore the world equilibrium so rudely shattered by the war, to relieve mankind of untold preventable misery, and to give back to the world the blessings of contentment and prosperity.

I say that you are working to retrieve the catastrophe of war, for nothing can be more true than the statement that it was the war that suspended your labours, and that the campaign against tuberculosis has been one of the chief sufferers by the last seven years of political and social convulsion. Up till the outbreak of hostilities in 1914, this campaign, well conceived and well directed, was in full progress; annual meetings of the International Tuberculosis Conference were held in one or other of the capitals of Europe or America; there was an active and efficient organisation; and the international movement thus started set before itself no less an object than the final eradication of this terrible scourge, which, in spite of the discoveries of medical science, still claims its hecatombs of victims, and leaves the country or the city which it devastates in a condition worse than a battlefield.

When the war was over this admirable movement was revived. It was organised upon a new basis, and the International Union against Tuberculosis, whose conference I am asked to inaugurate to-day, held its first meeting in Paris last autumn under the distinguished Presidency of Monsieur Léon Bourgeois. (Applause.)

It is a remarkable fact that, whenever I am brought into contact with some great movement of international utility, I come up against the venerable and beneficent figure of the President of the French Senate. In his own country it is well known that the highest position in the State was open to him had he chosen to take it. But he has always said "*nolo episcopari*" to supreme executive office. He has never said it, however, of unselfish labour for the welfare of mankind. (Applause.)

When I went to Paris for the first meeting of the League of Nations last year there was M. Léon Bourgeois, its original parent, in the chair. I fully expected to see him to-day; I deeply regret

his absence, but I am sure, Ladies and Gentlemen, you will join with me in sending a message of sympathy and respect to that distinguished man. (Applause.)

Now what are the external symptoms of the campaign against tuberculosis as it is waged in this country? First we are faced with a recorded mortality, steadily diminishing, but still amounting on an average, I have been told, to 1000 deaths a week. In many other countries the figures are much worse. Secondly, it can be shown by indisputable figures and facts that where the disease is scientifically assailed it can be systematically defeated. Thirdly, the co-ordination of all these isolated or sporadic attacks is a condition essential to success on a large scale. Fourthly, much may still be expected from the prosecution of scientific research. Lastly, it is imperative to conduct a vigorous educational propaganda among the people.

This Conference appeals to me, however, not merely because of the work it is doing in combating disease, or alleviating the lives of our suffering fellow creatures, but because it affords one more illustration of the ever-growing brotherhood of active and thoughtful men of all countries and races. Happily neither philanthropy nor science knows any frontiers. There has ever been a close and general fraternisation, a spiritual democracy, among men of science. They do not seem to distrust each other so profoundly or to attack each other so vehemently as politicians—(laughter)—or men of letters, or theologians. (Renewed laughter.) Perhaps it is because the objects of their study are more exact and are pursued with fewer personal or empirical pretensions.

Further, I hope I am not wrong in thinking that the war, in its appeal to every instinct of humanity, in its demonstration of the incalculable horrors of suffering, and in the spirit of cosmopolitan fellow-service in great causes which it has engendered, has drawn men together and rendered international co-operation more easy. Nowhere is such co-operation more imperative and nowhere is it certain to be attended with more practical results than in the campaign against terrible, but still curable, forms of disease. And in welcoming you to-day on behalf of the British Government, I feel that I am addressing a body of men and women whose labours, if steadily and unremittingly pursued, as they will be from year to year, cannot fail in the long run to have an immense and invaluable effect upon the physical and moral welfare of mankind.

And now, before I sit down, Ladies and Gentlemen, I have to read to you a message of welcome from His Majesty the King—

(applause)—ever foremost in the recognition of good work for the benefit of his fellow creatures. This is the King's message :

" I welcome to my Capital the distinguished representatives of many nations united in a common effort to combat the great scourge of tuberculosis.

" The encouraging success which is already manifest from these co-ordinated efforts in the cause of health leads me confidently to hope that further advances will attend the efforts of the present Congress, in whose work, following the example of my dear father, I take so deep an interest." (Loud applause.)

SIR ROBERT PHILIP : Your Excellencies, my Lords, Ladies and Gentlemen, I have now the honour to ask the Minister of Health to address the Conference.

The Rt. Hon. SIR ALFRED MOND (H.M. Minister of Health), who was cordially received, said : Your Excellencies, My Lords, Ladies and Gentlemen,—It gives me very great pleasure indeed, as Minister for Health in His Majesty's Government, to extend a most cordial and hearty welcome to the extremely important and representative gathering which I have the honour to address this morning. The list of countries which is represented here to-day is indeed almost all-embracing. It is truly significant of the great progress which has been made, and is being made, in the spread of science throughout the world : one of the most hopeful signs, I think, of our modern civilisation. Countries which, not so many years ago, would have taken little interest in subjects of this character, find it possible to-day to send representatives, and not merely representatives but helpful counsellors, in the great campaign which is being waged against one of the most terrible diseases with which humanity is acquainted or suffers from.

Tuberculosis in its many and varied forms has, of course, been well known to the medical profession for a very long time. Its ravages, unfortunately, are nothing new ; they are old and persistent. The disease has had time to extend itself over generations following generations, and to produce that constitutional tendency to succumb to the most insidious and most generally existing of microbes, namely, the microbe of tuberculosis. It is therefore most gratifying to find humanity, in a scientific sense, mobilising a Congress of this kind against a common enemy—an enemy which has no frontiers, an enemy which is not bound by limitations of armaments or munitions,

whose power of reproducing itself is infinite, and which has spread generally in many forms and shapes throughout all quarters of the world.

I think, perhaps, that it might interest the Conference if I would shortly summarise some of the steps which have been taken in this country in the last few years by the Government in dealing with tuberculosis.

The National Scheme for the Prevention and Treatment of Tuberculosis was inaugurated in this country in 1912, following the passage of our National Health Insurance Act of 1911. This scheme provided sanatorium benefit for insured persons suffering from tuberculosis. The benefit included both domiciliary and institutional treatment, and was administered by the Insurance Committees which were constituted under the Act for each County and County Borough. That was not merely the first great recognition of tuberculosis as a compulsorily notifiable disease, but a great national effort to deal with this very serious malady, a malady to which, owing to our climatic conditions, I think we are more subject than those living in drier and hotter countries. From this developed schemes for institutional treatment, which were organised by the County and County Borough Councils from 1912 onwards, this institutional treatment naturally being of the "sanatorium" order. The Government provided, under the Insurance Act of 1911, a sum of £1,500,000, which was to be distributed in the form of capital grants in aid of the provision of sanatoria and other institutions for the treatment of tuberculosis; and in 1912 they agreed to find an annual grant of 50 per cent. of the net expenditure of the County and County Borough Councils upon the institutional treatment of tuberculosis.

That was the beginning of a big scheme initiated by the present Prime Minister—then the Chancellor of the Exchequer—Mr. Lloyd George, on the passing of the National Health Insurance Act, and steady progress was being made with these schemes when the war came in 1914. As in so many other cases, the devastating years of war handicapped this beneficent effort of humanity, and during the four years relatively little was done in the way of extending the existing provision for institutional treatment. But since the Armistice we have been able to resume progress, and considerable additions to the sanatorium and hospital accommodation available for the treatment of tuberculosis have been made.

Now, in this country, we have three main elements in our scheme of institutional treatment. We have, first, the tuberculosis officer; secondly, the dispensary, which is an anti-tuberculosis centre; and,

thirdly, the sanatorium, which is intended for residential accommodation. In England there are at present 341 tuberculosis officers, 412 tuberculosis dispensaries, and 18,050 beds available for tuberculosis in sanatoria and hospitals—an increase in the last two years of 4000 beds—and we now have buildings in progress which will give us over 3500 additional beds during the next two years.

Of course the sanatorium treatment follows well-recognised lines, which probably will form some of the subjects of your discussion. The question of its ultimate value is, I know, one of considerable discussion among experts on the question of tuberculosis at the present time. I do not think that anyone who has followed this subject for any number of years can be at all satisfied that the scientific progress we have made so far is really satisfactory. It is many years now since that great bacteriologist, Koch, first isolated the tubercle bacillus and himself developed tuberculin treatment. Since then a great deal of work has been done by many eminent men in all countries in that direction, but, unfortunately, I do not think at the present time we have yet arrived at a stage in which we can definitely say that the treatment of tuberculosis by methods of inoculation alone is certain in its curative result, so we have to continue, as you see, with sanatorium treatment, which is, of course, in itself an expensive method of dealing with any illness, and which one hopes may some day be supplanted by what I might call a more direct medical treatment of the disease.

Of course, in sanatorium treatment itself a great deal of development has taken place. We now give, in a number of them, courses of training in occupations suitable for consumptive patients. The older idea that patients in sanatoria were to do nothing at all has, of course, long since been superseded by more modern notions, both as to exercise and occupation. Five hundred places are being provided by the Government at selected sanatoria for the special training of tuberculous ex-service men—men who have come back from the war. A village settlement is in course of development at Papworth, in Cambridgeshire, at which a certain number of patients who have received a full course of treatment and training will be able to take up residence with their families, and some twenty men are already in occupation of cottages at this settlement. There is also prospect of a similar settlement or colony at Preston Hall in Kent, the endeavour being not merely to restore the patient to a normal condition, but to keep him afterwards in occupation and in surroundings which will prevent a reinfection and a recurrence of the disease after the treatment has been completed.

That, of course, is one of the most difficult problems you have to meet with in dealing with sanatorium treatment, as you are all aware, and we are endeavouring to deal with it in this way in this country, if at present only on a small scale. Of course in this, as in so many other matters—and I have no doubt in most countries represented here to-day—the financial aftermath of the war, restricting as it does the most generous purse-strings both of governments and of private individuals, is a serious handicap to the more rapid development of whatever one would like to do. Still, it is satisfactory to know that great progress has been made, a rather striking progress, in dealing with this disease since the year 1914.

I do not want to trouble you with too many figures, but the following are certainly very interesting. In 1914 there were 99,000 notified cases of tuberculosis and 50,000 deaths. That was the beginning really of this treatment. In 1915 the figures of cases notified fell to 90,000; the figures of deaths went up to 54,000. The figures remained fairly constant for the next three years, but in 1919 you got a reduction—77,000 cases notified and 46,000 deaths—and in 1920 you reached the figure of 73,000 cases notified and only 42,000 deaths. So in six years your cases notified have diminished by no less than 26,000 and your deaths no less than 8,000.

Now, considering that we only started in 1912, that you have had all the interruptions and difficulties of the war, those figures are very striking and very encouraging and give everyone, I think, great encouragement, showing that the path we are pursuing is making a very notable impression on this terrible illness. (Applause.)

I have no doubt that the great Conference you have assembled here to-day will, in the course of its discussion, give us a great deal of light and information. There can be nothing more useful than that men and women who are devoting their lives, under, very often, varying conditions of country, climate and individual, should meet together to exchange experiences and learn one from the other, and I have no doubt that the officers of my Ministry who are taking part in this conference will be very ready and pleased to hear what is going on in other countries, and I hope that in due time they may be able to report to me new methods and improvements which we may be able to introduce into this country. (Applause.)

It is obvious that we cannot stand still. It must be clear, even to the dullest intelligence, that a disease so fatal in its results, and incapacitating such a large section of the population by illness, is a

huge economic loss which cannot be regarded with equanimity. Apart from the ground of humanity, which appeals strongly enough to all of us—and I suppose there is not any human being in this room who has not had among close friends, if not among relations, instances of this disease—but apart from humanity, on the mere ground of economics, of national welfare, of national prosperity, there is nothing of greater import, there is no greater cause to which people can devote their lives than to the stamping out of this terrible disease. (Loud applause.)

Sir ROBERT PHILIP: Your Excellencies, my Lords, Ladies and Gentlemen,—Lord Curzon and Sir Alfred Mond are called away on business of considerable moment. We must not detain them one minute longer than is necessary, but I am sure it will be your wish that before they leave I convey to them in your name our sincere and cordial thanks for having come here to-day. (Applause.) Their presence with us is no doubt in part an expression of personal interest in a subject that affects the whole of humanity, but at the same time we value it as an indication of the profound concern with which the State regards a subject which so intimately involves the health of the citizens.

One of our most distinguished statesmen, the late Lord Beaconsfield, said that the first care of a statesman is the public health of the country. In that spirit we welcome the presence of the two Ministers, and in your name I desire to render to them our very hearty thanks. (Applause.)

(The Ministers then retired.)

Sir ROBERT PHILIP: Your Excellencies, my Lords, Ladies and Gentlemen,—The next item on the programme is one of peculiar interest. The occasion, we shall all agree, is profoundly significant, essentially and historically. I content myself with dwelling on the remarkable character of the gathering itself. We have assembled on the platform, or immediately round the platform, representatives of no fewer than thirty-nine countries—(applause)—and along with them we are happy to include representatives of the League of Nations and the League of Red Cross Societies.

Before we ask the several delegates to address us for a single minute each, I desire, in your name, to thank their Excellencies the Ambassadors, and other representatives of many countries, who have honoured us with their presence at the opening ceremony. We

feel once more that, while this may be the outcome of personal interest in the subject, it is likewise a striking expression of our profound common interest in the great humanitarian and racial problems we are met to consider. (Hear, hear.) In your name I take this opportunity of thanking them for coming to the inaugural meeting. (Applause.)

I now invite Prof. Léon Bernard, of the University of Paris, who is—shall I say?—perpetual Secretary of the International Union, to announce the several countries which have sent delegates. May I ask the representative of the country named to come to the platform, if he is not already here, and, in the interest of our common time and comfort, to limit his remarks in the way we have proposed?

Prof. LÉON BERNARD introduced the representatives of the various countries in order as follows:

Dr. PAUL BERGARA (Argentina): Mr. President and Gentlemen, the Argentine Republic has always followed with great interest the campaign undertaken to fight a disease so terrible as tuberculosis.

My presence at this Conference, as representative of the Consulate of our country in London, and also the presence of a delegate from the Argentine League against Tuberculosis, is evidence of our desire to contribute to the common struggle against such a scourge which chastises the whole of humanity. (Applause.)

Col. NORRIS (Australia): Mr. President, Ladies and Gentlemen,—Australia is a far-distant country, but the voice of Australia may still be heard in England in the future—(hear, hear)—not only in matters of literature and politics, but even in matters of medicine. I hope, therefore, that this meeting will recognise that Australia takes a very deep, because a scientific, interest in the solution of the great problem of tuberculosis. (Applause.)

His Excellency Herr FRANKENSTEIN (Austria): Mr. Chairman, Ladies and Gentlemen,—May I just say that Austria, which is suffering most awfully from this terrible disease, is following the work of this Congress with its greatest sympathy and with its most sincere wishes. (Applause.)

Dr. DEWEZ (Belgium): Monsieur le President,—C'est avec la plus grande satisfaction que j'ai accepté la mission qui m'a été confiée de venir prendre part aux travaux de la conférence de Londres.

Elle me procure l'occasion précieuse de présenter à notre vénéré Président l'hommage de notre affectueux respect et de lui dire combien nous sommes fier de collaborer, sous son égide, à la constitution de l'Union Internationale contre la Tuberculose.

De plus, il m'est bien agréable de vous dire tout le prix que notre association Belge attache à la prochaine conférence, et m'a chargé de vous exprimer sa gratitude d'avoir choisi Bruxelles pour votre prochaine réunion.

Prof. MEAKINS (Canada) : Mr. Chairman, my Lords, Ladies and Gentlemen,—As a Canadian I can speak with great confidence as to what we have been doing, and hope to do, to combat this terrible scourge. Furthermore, as a colleague of our honoured President, I can speak with a great deal of thanks for what he has done for us in Canada, both by his noble, world-wide example, and also by his personal precept. I can assure you that we are doing what we can to fulfil our obligations in this fight. (Applause.)

Mr. CHAO-HSIN-CHU (China) : Mr. Chairman, Ladies and Gentlemen,—I wish to assure you that my country, China, is willing to co-operate in the International Congress against Tuberculosis ; and, further, that China will become an active member of the International Union upon the receipt of my report on the excellent work of this International Congress. (Applause.)

His Excellency Dr. GUTIERRIEZ PONCE (Colombia) : Mr. Chairman, Ladies and Gentlemen,—It is most gratifying to me to have the honour of offering, on behalf of the Colombian Government, our congratulations to the Council of the National Association for the Prevention of Tuberculosis on this Conference of the International Union, from which we anticipate great success. This is a war which the League of Nations does not prohibit, but commends to all of us to pursue against the common enemy. It is a conflict in which no country can remain neutral, so I am happy to assure the Union that the Republic of Colombia will spare no effort to co-operate in order to further the objects of the Association. (Applause.)

His Excellency General GARCIA VELEZ (Cuba) : Mr. Chairman, Ladies and Gentlemen,—The Republic of Cuba is one of the first countries that has shown interest in the prevention of this terrible scourge. We have a Department of Sanitation—one of the first Government Departments of the Island—and we are doing all we

can for the prevention of this disease. The Cuban Government will be very glad to co-operate in any international measures that may be taken by this Conference. (Applause.)

Dr. HYNEK PELC (Czecho-Slovakia): Mr. President, Ladies and Gentlemen,—As a young man, speaking on behalf of a young Republic, I want to thank first the great nations for the help which they have given to us to win our independence, and the help which they continue in peace time. Let me finish by expressing the best wishes of the organisations which I am representing—the Ministry of Public Health and the National Council of Social Hygiene of Czecho-Slovakia—to the International Union against Tuberculosis, and the hope that this means a further step to our final aim, namely, the eradication of tuberculosis from the world. (Applause.)

Dr. FABER (Denmark): Mr. President, Ladies and Gentlemen,—In the name of Denmark and the Danish National League against Tuberculosis I desire to express our best wishes for the success of this important Conference and for the future international fight against tuberculosis, and our best thanks for the welcome given to us here. (Applause.)

Dr. ALEXANDRE CAWADIAS (Greece): Mr. Chairman, Ladies and Gentlemen,—In the name of Greece I have the honour to present my greetings to the British Government and my thanks for the great hospitality it gives our Conference. My Government, conscious of the part it is taking in the promotion of the progress of civilisation in the East, wishes to take a full share in the work of the Conference, and although in these critical moments of our national history all our thoughts and all our energies are concentrated on that last fight we are making for our life and for the freedom of our brothers, we do not forget that on the morrow of the war a still greater task will claim our energies—the work of building up again—and the beginning of this will be the prevention of the worst plague of humanity, of tuberculosis. (Applause.)

His Excellency Dr. DON MANUEL ARROYO (Guatemala): There is an obligation on the universal conscience to solve the grave problem of tuberculosis. All the nations of the world are profoundly interested.

I have the honour to greet, in the name of the Government of Guatemala, the members who compose this illustrious assembly, and I earnestly hope that, as the result of its deliberations, something

useful for suffering humanity will emerge. I also greet, in the name of my Government, His Majesty the King, the first representative of the people of this great Empire, so many of whose illustrious sons have already done so much by their discoveries and researches in the field of medicine and surgery, and who to-day receive us with such generous hospitality. (Applause.)

M. CASSEUS (Haiti) expressed the warm interest and good wishes of his country.

Professor W. NOLEN (Holland): Mr. President, Ladies and Gentlemen,—Having had the honour of being present at the British Congress on Tuberculosis in the year 1901, as a delegate from the Government of Holland, I gratefully bear in my memory the remarkable success of that international meeting that, as was said by the illustrious Brouardel, did “mark an era in history.” Indeed, we shall never forget the admirable simplicity with which one of the greatest benefactors of mankind, your immortal Lord Lister, in the second general meeting of that Congress, developed his well-founded opinion regarding the alarming statements of Robert Koch, “that human tuberculosis could not be transmitted to cattle,” and “that the infection of human beings by bovine tuberculosis might be but of a very rare occurrence.”

Recalling the success of that splendid British Congress to my mind in this moment, I am sure at the same time that this Conference, too, will inspire us with courage in the peaceful and noble fight against tuberculosis. I therefore have great pleasure to offer to you, in the name of the National Association against Tuberculosis of Holland, our best wishes for the results of this Conference, and to thank you for the kindness and hospitality with which we have been received in this famous Capital of the powerful British Kingdom. (Applause.)

Lieut.-Col. HUTCHINSON (India): Mr. Chairman, Ladies and Gentlemen,—I have the great privilege to convey the greetings and the well-wishes of the Government of India. We have confident belief that the deliberations of this Conference of the International Union will assist us materially in our efforts to relieve the vast population of India from the ever-growing menace of tuberculosis. (Applause.)

Senator PRO FOÀ (Italy): Signore e Signori, Onorevoli Colleghi,—Ho l'onore di porgervi il saluto e l'omaggio delle Associazioni Nazionali

Italiane contro la tubercolosi. È confortante lo spettacolo che offrono tutti gli Stati col prendere attiva parte alla lotta Contro la tubercolosi, resa necessariamente più intensa dopo la guerra.

In ogni Paese il flagello popolare è pur troppo, intensificato, ma è anche bello di constatare che tutti si adoperano col massimo zelo per combatterlo.

Ricordo di avere già conosciuto a Roma il nostro illustre Presidente Sir Robert Philip, quando ci ha mostrato con una film cinematografica la lotta che si faceva ad Edimburgo contro la tubercolosi. Così pure ebbi l'onore di conoscere molti di voi, Signori, successivamente a Roma, a Bruxelles e a Parigi prima e dopo la guerra—Ora siamo tutti animati della stessa convinzione che è necessario sia diffusa nelle nostre popolazioni; quella, cioè, che impiegando i mezzi che la scienza e l'esperienza mondiale hanno suggerito e che oramai non sono più argomento di discussione e di separazione nelle idee e nei metodi di applicazione, si può essere sicuri, alla fine, della vittoria, come già era stato dimostrato prima della guerra colla sensibile diminuzione della mortalità per tubercolosi che si era manifestata in tutti gli stati civili d'Europa.

Mr. NAGAI (Japan): Mr. Chairman, Ladies and Gentlemen,—I have been requested by the officials of the Conference to explain to you—in the event of no response from the Japanese delegates in the gathering here to-day—that the absence of the Japanese delegates does not mean that Japan does not take any interest in this movement. It is because the Japanese delegates have not been able to reach here this morning, but I can assure you that they will be here this afternoon, and they will share the work of your delegates to this Conference to-day. Japan knows that this movement is very worthy. She is suffering from the scourge of this terrible disease, and she knows it is a great problem for the world to solve and mankind to undertake to prevent. Therefore her delegates will only be too glad to co-operate with you, and in their name I thank you for the hospitality which is to be extended to them. (Hear, hear.)

Dr. LOÛET (Monaco): Monsieur le Président, Mesdames, Messieurs,—Très modeste représentant d'un Souverain—passionnément épris de Science comme de Vérité j'ai le très grand honneur de saluer votre Congrès et de lui apporter les félicitations de S.A.S. le Prince de Monaco et de Son Gouvernement.

Des questions aussi graves au point de vue social que celle que vous agitez ici dépassent les nationalités: ce qui compte c'est la

pensée des peuples et de ceux qui ont le souci constant de les diriger, avec une généreuse ténacité, dans la voie du progrès.

Depuis longtemps la Principauté de Monaco s'attache attentivement à tous les perfectionnements de l'Hygiène. Aujourd'hui, elle suit avec le plus profond intérêt votre effort en avant dans cette lutte que vous avez si vaillamment entreprise contre un des plus grands ennemis de l'Homme—la Tuberculose! (Applause.)

Dr. MAKGILL (New Zealand): Mr. President, Ladies and Gentlemen,—I represent the very farthest part of the earth; we are right round at the other side, as far away as we can get—(laughter)—and we conceive it a great honour to be represented at such a gathering as this. Although we are very small we are very practical, and the instructions I have received from my department are to ascertain how best to make the sufferers from tuberculosis practical, useful citizens. It is in the matter of farm colonies especially that we are interested, and therefore I am very glad to have this opportunity of hearing something about that matter, of which we know nothing in New Zealand. (Applause.)

Prof. FRANCIS HARBITZ (Norway): Mr. President, Ladies and Gentlemen,—From Norway I have the honour to bring our thanks and compliments for the invitation to this important Conference. We of Norway expect to see and learn much here in Great Britain, especially regarding the practical work in the struggle against tuberculosis. I have already been so fortunate in Scotland as to have learned, and seen in practice, the value of the Edinburgh system—inaugurated, as is well known, by our President, Sir Robert Philip—a system that might be used as model in other countries also. I am convinced that good results will emanate from our discussions in many respects. For the opportunity of sharing in this important meeting our most sincere thanks and greetings. (Applause.)

M. KOMIEROWSKI (Poland): Your Excellencies, my Lords, Ladies and Gentlemen: In the name of my country, the Republic of Poland, so greatly distressed by the incidence of war and all sorts of diseases, I would like to point out that the Great Nations not only restored our liberty, but are giving us prominent help in combating all sorts of diseases, and I need not assure you that my country follows with deep interest the work of the Conference. (Applause).

Dr. IRIMESCU (Roumania) : Pays neuf et pays jeune qui a beaucoup à apprendre des pays de culture plus ancienne, nous tenons à nous associer à tous les mouvements de progrès humain.

Quand il s'est agi de prendre une attitude dans le grand combat qui mettait en jeu les possibilités de développement des libertés essentielles, nous n'avons pas hésité, et nous avons su être du côté du droit. Ensemble, nous avons pu vaincre, pour assurer les acquisitions de la civilisation qui étaient menacées dans leurs bases. Nous ne demandons qu'à persister dans la même attitude et c'est pourquoi nous ne pouvons pas rester en dehors du combat que vous livrez à l'autre ennemi, à la plus meurtrière des maladies qui est pour nous un danger encore plus grand, parce que notre organisation pour la combattre est encore à ses débuts.

Nous venons prendre chez vous une grande leçon de choses. En organisant vos forces pendant la guerre vous avez pu avoir la grande victoire qui vous a assuré un prestige d'estime et de gloire dans la mémoire reconnaissante des peuples. Votre organisation pour combattre les maladies sociales et en premier lieu la plus répandue d'entre elles qui est la tuberculose, est tout aussi merveilleuse. Nous saurons, en nous inspirant de votre exemple faire aboutir chez nous des mesures tout aussi efficaces. Votre aide puissante—et nous n'oublierons jamais la main fraternelle que vous nous avez tendue—qui nous a permis non seulement de résister mais de vaincre à vos côtés, cette aide puissante, nous vous la demanderons de nouveau. Nous puiserons dans votre exemple et quand le besoin s'en sentira, nous demanderons à ce que vous nous guidiez pour que cette fois-ci encore nous puissions terrasser aussi le grand ennemi intérieur, contre lequel vous savez si bien lutter qu'il n'est qu'une question de temps pour que vous arriviez à l'abattre.

Au nom du gouvernement roumain je salue la conférence de Londres et je m'engage de la part de mon pays à agir de concert avec vous tous pour qu'ensemble, à nos prochaines réunions, nous puissions célébrer une autre grande victoire comme nous avons célébré l'autre, dont le souvenir ému est encore vivant dans nos cœurs reconnaissants, qui plus que jamais vous restent attachés et pour toujours. (Applause.)

Dr. HAYDON (South Africa) : Mr. Chairman, Ladies and Gentlemen,—I have to express my kind appreciation of the friendly spirit in which I and my fellow delegates from South Africa have been welcomed by this Conference, and also to express thanks for the very

lavish hospitality already foreshadowed, for which our thanks are due to the National Association for the Prevention of Tuberculosis.

As regards South Africa, after many years of strenuous effort, we have at last got an organisation for the combined provinces of the Union, and we have already made a beginning—thanks to the very lavish contributions, both from the Government and from private individuals—in the prevention of this disease; and I am here to watch, as far as may be, to what extent, and on what lines the efforts of other countries are progressing. (Applause.)

Senator ESPINA Y CAPO (Spain): Exmo. Sr., Señoras, Señores,—Al saludar a V.V. como Representante de España en esta humanitaria Conferencia me felicito de cada día se afianze mas la paz y nos internacionalizemos con un espíritu de solidaridad para combatir la tuberculosis, qui si la civilizacion ha de ser completa, tiene antes que vencer a tamaño mal que siega en flor, como la mas terrible guerra la juventud y acorta la vida con vejezes prematuras.

Saludo tambien a la Inglaterra, que ha marchado en la vanguardia de la Sanidad y desde mediados del siglo pasado se ha preocupado de esta lucha contra la tuberculosis. Ha sido tal vez la primera que hospitalizó al tuberculoso de tercer periodo y se ha preocupado del tuberculoso infantil, buscando en la niñez robusta la esperanza de las humanidades del porvenir.

En el triste paréntesis de la guerra pasada todo se subordinó a la lucha cruenta y ahora debemos ganar el tiempo perdido y asentar sobre bases indestructibles nuestras campañas sanitarias y que nazcan, de estas fraternales reuniones, Leyes Sanitarias que si no acaben de una vez con las enfermedades evitables, cuando menos reduzcan a cifras mínimas la morbilidad y mortalidad que producen, y en tanto van naciendo las vacunas preventivas, preparemos su advenimiento con resistencias y defensas orgánicas capaces de hacer improductivo todo gérmen morbosos. Fortifiquemos el cuerpo, desterremos sífilis, alcohol, tabaco, paludismo, casas insanas, trasnoches peligrosos y todas las causas de depauperacion hasta el día glorioso de la redencion de las infecciones.

En este trabajo, España se preocupa cada día mas en estos problemas y unida a todos vosotros tratará de borrar fronteras del saber y la humanidad, y con leyes nuevas, coma cada día se presentan a nuestras Cortes marchará hacia el progreso Sanitario, siendo nuestro mayor preocupacion la lucha contra la tuberculosis y estad seguros de que no habrá nacion alguna que nos gane en buen deseo

y en mayor intensidad de trabajo para poder formar con todos vosotros el ejército internacional de la Sanidad Pública y aun pidiendo puesto en la vanguardia para contraer mayor responsabilidad en la lucha.

Termine haciendo votos por la definitiva Constitución de la Asociación Internacional contra la Tuberculosis. (Applause.)

M. CEDERKRANTZ (Sweden): Mr. President, Ladies and Gentlemen,—When last year the first steps were taken towards establishing a new international organisation against tuberculosis, it was with great sympathy that the Swedish National Association responded to the appeal to join in this work. The situation with regard to tuberculosis had certainly not improved during the last preceding years, and it was considered a matter of extreme importance to humanity that something should be done in order to re-organise the campaign. To-day we meet here with the hope of completing the work of organisation. There may still be difficulties in the way, but, considering the importance of the question and the great common interest, it is to be hoped that everybody concerned will do his best to overcome those difficulties. On behalf of the Swedish National Association, which I have the honour of representing here, I beg to express their best wishes for the success of this Conference and their fervent hope that the Conference, before rising, will have established an organisation, with all the necessary strength and all the necessary authority, to fight in the most effective way this scourge of mankind. (Applause.)

Dr. BACHMANN (Switzerland): Au nom de l'Association Suisse contre la Tuberculose et tout spécialement au nom des délégués suisses ici présents, je vous remercie de l'invitation de prendre part à cette conférence.

Nous remercions vivement le comité national anglais de l'excellent accueil qu'il nous a préparé et nous sommes heureux d'avoir l'occasion d'étudier et d'admirer l'immense œuvre humanitaire que le comité national anglais a déjà accompli et accomplira encore dans la lutte antituberculeuse.

L'Association suisse suivra vos délibérations avec un intérêt tout spécial espérant qu'il se trouvera une solution, qui permettra aussi aux petits pays d'adhérer à l'Union Internationale.

Puisse cette conférence, qui se réunit dans un pays, dont les efforts antituberculeux sont connus par le monde entier, nous rapprocher d'un grand pas vers le but final et faire disparaître ce

fléau de l'humanité. C'est dans ce sens que le comité national suisse m'a chargé de vous transmettre ses vœux sincères pour le bon succès de cette conférence. (Applause.)

Col. GEORGE E. BUSHNELL (United States of America): Mr. Chairman, Ladies and Gentlemen,—It is a very great pleasure for the American delegates—I am sure I can speak for all of us—to come back to this land, the home of our ancestors. I feel as if I were coming home. (Applause.) And the first thought that comes in my mind is not to state what we have done and what we want to do, but to do what I said when I came here, to say I am glad to be here, and I think I may say that your applause may be interpreted as saying you are glad to have us. (Renewed applause.) I have very great pleasure in bringing to you the greetings of the people interested in tuberculosis in the United States, especially the National Tuberculosis Association, and of the American profession, and I can assure you that we are all heartily with you in all good works. (Applause.)

Dr. E. TEJERA (Venezuela): “Le Venezuela est très heureux d'assister à la Conférence Internationale de la Tuberculose, et son Gouvernement profite de l'occasion pour féliciter chaleureusement l'Union Internationale contre la Tuberculose pour l'œuvre si utile qu'elle a entreprise en luttant contre ce terrible mal qui décime l'humanité.” (Applause.)

Sir ROBERT PHILIP: Your Excellencies, my Lords, Ladies and Gentlemen,—It is now my privilege to ask a distinguished representative from France to address us. Monsieur le Sénateur André Honnorat has come at personal inconvenience to replace Monsieur Léon Bourgeois, of whom Lord Curzon has just spoken, and whose absence we all deeply regret. I have the honour to call upon Monsieur le Sénateur André Honnorat. (Applause.)

ADDRESS BY MONSIEUR LE SÉNATEUR ANDRÉ HONNORAT (*Late Minister of Public Instruction in the French Government*).

Mesdames, Messieurs,—Vous ne serez pas surpris qu'avant de vous dire les espérances que les groupements français qui ont adhéré à l'Union Internationale contre la Tuberculose fondent sur vos travaux, je tiens à me faire l'interprète de nos sentiments auprès de nos Collègues Anglais.

La cordialité de leur accueil nous touche tous trop profondément pour que je puisse consentir à différer d'un moment l'expression de notre commune gratitude.

Que Monsieur le Secrétaire d'État pour les Affaires Etrangères et Monsieur le Ministre de la Santé Publique du Gouvernement de Sa Majesté Britannique me permettent cependant de ne répondre qu'en peu de mots à leurs souhaits de bienvenue. Je n'ai garde d'oublier que notre cher et vénéré Président, Monsieur Léon Bourgeois, en me confiant le redoutable honneur de le remplacer auprès de vous n'a pas mis à ma disposition les ressources de sa parole ailée et, au risque d'ajouter aux regrets que vous cause son absence, j'aime mieux dire simplement nos remerciements à Lord Curzon et à Sir Alfred Mond plutôt que de m'exposer à les mal dire.

Vous ne me pardonneriez pas si je pouvais négliger de rendre publiquement hommage au concours empressé que nous avons trouvé auprès Sir Robert Philip.

C'est à lui qu'est dû le succès de la conférence qui s'ouvre aujourd'hui. C'est à lui qu'incombera, dès ce jour, le soin de diriger les travaux de l'Union. En votre nom à tous et plus particulièrement au nom de la Délégation Française et de son Président, je tiens à le féliciter de l'œuvre accomplie et à l'assurer de la joie que nous aurons à le seconder dans la tâche si lourde et si délicate qu'il va assumer.

Je ne m'attarderai pas à remercier tous ceux d'entre vous qui se sont acquis des titres à notre reconnaissance. Je les prie seulement de croire que nous savons ce que nous leur devons et que nous ne nous sentirons quittes vis-à-vis d'eux que lorsque nous aurons su mettre leurs travaux à profit.

Je puis d'autant mieux leur donner cette assurance que ma présence au milieu de vous ne se peut justifier—à mes yeux du moins—que par les efforts constants que j'ai faits pour traduire en textes législatifs quelques-uns des vœux que, pendant trop longtemps, plusieurs d'entre vous avaient en vain formulés.

N'en doutez donc pas, Mesdames et Messieurs, ce ne sont pas les bonnes volontés qui vous manqueront. Les Gouvernements commencent à se rendre compte que, de tous les problèmes qui sollicitent leur attention, les plus graves sont encore ceux qui ont pour objet de délivrer le genre humain des fléaux qui l'accablent. Ils savent que, parmi ces fléaux, la tuberculose est—après la guerre—celui qui a le plus décimé nos jeunes générations. Ils se feront un devoir de répondre à votre appel et de le combattre—comme la guerre—sans merci.

L'exemple que vous donnez leur trace d'ailleurs la voie. Car dans ce domaine, comme dans la plupart des autres, la coopération des États Libres s'impose, si nous ne voulons pas que l'Europe s'épuise en efforts stériles et fasse perdre à l'humanité le bénéfice inappréciable de tant de siècles de civilisation raffinée.

Voltaire écrivait en 1768 à un médecin de Paris qui venait de faire publier une histoire de la Petite Vérole : "Nos Princes ne seront pas assez sages pour faire une ligue offensive et défensive contre ce fléau. Nous serons longtemps fous et insensibles au bien public. Chacun vit pour soi. *Sauve qui peut* est la devise de chaque particulier."

Que nos démocraties méritent encore le reproche que Voltaire adressait aux autocraties de son temps, hélas ! on aurait quelque peine à le contester. Et pourtant que de chemin parcouru, que de progrès accomplis, quelle évolution dans les esprits !

La guerre elle-même, l'affreuse guerre qu'un Germanisme attardé dans les rêves brutaux du passé a déchaînée sur nous, n'a pas éteint en nos cœurs la flamme pure qu'y avaient allumée tant de nobles esprits, tant d'âmes généreuses qui font la fierté de votre Patriotisme et l'orgueil du nôtre. On peut même se demander si elle ne l'a pas avivée, tant nous avons besoin, pour oublier l'horreur des maux qu'elle nous a infligés, de nous bercer de l'espoir que nous pourrions épargner à nos fils le retour de ces maux et faire pour eux la vie plus belle et plus douce.

Nous n'y réussirons pourtant que si votre idéal devient l'idéal commun de tous les peuples, que si nous réussissons à les convaincre que leur salut dépend avant tout et surtout de l'effort qu'ils feront pour s'inspirer, dans leur propre conduite, des principes qui vous guident.

Je m'explique :

Tous les phthisiologues sont d'accord pour proclamer que le propre de la tuberculose est d'être un mal d'ignorance et de misère, et d'ignorance plus encore que de misère. Tous sont d'accord pour proclamer qu'elle relève moins de la thérapeutique que de l'action éducatrice de la loi.

Et de fait, il semble bien qu'elle causerait moins de ravages si les peuples parvenaient à comprendre que le caractère vrai d'une législation sociale n'est pas de chercher à répondre à la somme des aspirations individuelles du plus grand nombre de citoyens, mais tout au contraire, de chercher à sauvegarder l'ensemble de leurs intérêts collectifs.

Le jour où ils se rendront compte que la santé est, de tous les

biens, le plus précieux, celui qu'il importe avant tout autre de préserver, il sera aisé de les amener à prendre conscience des obligations qu'impose la vie en société et auxquelles nul ne peut se soustraire sans autoriser d'autres à s'y soustraire aussi et sans préparer ainsi ses propres maux.

Il n'est pas de cours de morale qui vaillent ceux que vous enseignez dans vos dispensaires, dans vos sanatoriums, dans toutes les œuvres que vous avez fondées.

Si les maîtres auxquels nous confions le soin d'élever nos enfants pouvaient suivre vos travaux, que de traits saisissants ils pourraient donner en exemples à leurs élèves.

Je le dis avec conviction, nous n'aurons rempli toute notre tâche que le jour où les éducateurs de notre jeunesse auront été à votre école et où, grâce à vous, ils auront saisi les raisons profondes qui commandent aux hommes de s'imposer librement certaines disciplines dont la vieille métaphysique ne peut plus suffire à faire entrevoir les avantages et les bienfaits.

Je me félicite d'avoir pu faire une place plus large à l'Enseignement de l'Hygiène sociale dans les programmes de nos Écoles Primaires Supérieures de France. Mais je ne me le dissimule pas, il ne servira à rien d'avoir fait figurer cet enseignement parmi les matières de ces divers programmes, s'il ne doit pas être donné selon vos méthodes : je veux dire selon les leçons de l'expérience.

Or, ces leçons, où pourra-t-on les recevoir si, dans trop de pays, les dispensaires restent trop peu nombreux pour répondre aux besoins de la population ? Et que vaudront-elles si, dans trop de pays, l'enfant continue à être exposé à la contagion scolaire comme à la contagion familiale ?

Vous me pardonnerez d'aborder ainsi de mon propre mouvement un sujet qui n'est pas à l'ordre du jour de vos travaux. Mais puis-je oublier que j'ai eu la charge de diriger le Ministère duquel dépendent, en France, tous les Établissements d'Enseignement ? Et ai-je tort de penser qu'entre les intérêts sacrés dont ces Établissements ont la garde et ceux que vous vous êtes donné pour mission de sauvegarder, les liens doivent devenir de jour en jour plus étroits et plus intimes ?

Je n'ose vous demander d'engager sur un pareil sujet une discussion inopinée. Mais je prends la liberté de prier votre Bureau de nous mettre en mesure de l'aborder un jour et de vouloir bien, pour rendre cette discussion plus fructueuse, s'enquérir dès maintenant des mesures qui ont pu être prises dans les divers pays ayant adhéré à votre organisation pour empêcher la tuberculose de se

propager à l'école (à l'école rurale comme à l'école urbaine) et pour donner à l'enseignement de l'hygiène dans les programmes scolaires la place qui doit lui revenir.

Je m'arrête, Messieurs. Comme vous, j'ai hâte de prendre connaissance des rapports qui sont soumis à vos délibérations et plus que vous, j'aurais regret à retarder par de vains discours le moment où vous pourrez discuter les conclusions de ces rapports.

Qu'il me soit seulement permis, avant de renoncer à la parole, de vous assurer que je ressens trop le prix de l'honneur que vous me faites pour n'avoir pas à cœur de le justifier en continuant à m'employer de mon mieux à servir en toute circonstance, aux côtés de Sir Robert Philip, de M. Léon Bourgeois, de mes amis les professeurs Calmette, Léon Bernard, Besançon, et de tant d'autres qui sont, ici, la cause sainte dont vous vous êtes faits avec eux les apôtres. (Loud applause.)

Sir ROBERT PHILIP: Before calling on Col. Bushnell, I desire to convey to Monsieur Honorat our very hearty thanks for his vibrating words; the words of a statesman who has not only thought out the matter from the ordinary human point of view, but who, after prolonged experience as Minister of Public Instruction in France, has proposed a most practical addition to the measures already undertaken. I have now the privilege of asking Col. George Bushnell, of the United States Army, to address us. (Applause.)

ADDRESS BY COLONEL GEORGE BUSHNELL

(*U.S.A. Army*).

There can be, of course, no question but that the diagnosis, treatment and prophylaxis of tuberculosis, as well as the education of the people in practical prophylaxis, all depend ultimately upon our conception of the pathology of the disease. It is, therefore, unfortunate that notwithstanding an enormous amount of work and many notable advances in our knowledge, the views held as to the pathology of tuberculosis are as discordant as ever. Little real progress can be made until we agree better as to the fundamental questions of tuberculosis.

Why does this discordance exist? Largely, it seems to me, because of the neglect of fundamentals for the study of other questions of a more advanced and recondite nature.

It is to the study of some of the fundamentals in tuberculosis that I desire to invite your attention.

When the discovery of the tubercle bacillus furnished for the first time simple and objective criteria for the detection of tuberculosis in its manifest forms, the tuberculous stood out as a well-marked class, sharply distinguished from the healthy. On one side of the line in our conception were the tuberculous, who were to be shunned as sources of infection; on the other side of the line stood the healthy, who were to be protected against the disease by ordinances and regulations, no matter how oppressive to the tuberculous members of the community. But difficulties at once arose in applying in practice this simple classification. The disease is insidious; some who seemed healthy proved to be its victims. The task that confronted the profession was the detection of masked tuberculosis. The line that had seemed so sharp now proved to be sometimes obscure and confused. But greater difficulties impended.

The introduction by Von Pirquet of the cutaneous tuberculin test was only less important from an epidemiological standpoint than the discovery of the tubercle bacillus. We remember the consternation with which the medical profession received the demonstration that at least a very considerable portion of the supposedly healthy members of the civilised community had come into contact with the tubercle bacillus to the point of reacting to tuberculin, were therefore properly to be considered as infected with tuberculosis. The medical men, of the United States at least, averted their eyes from the idea as from a spectacle too terrible to witness. Every effort was made to minimise the importance of the unwelcome revelations. The positive findings were obtained, it was said, among the proletariat of European cities; they did not apply to the conditions of American life. An attenuated tuberculin gave us much smaller percentages in the cutaneous test than those of Vienna, and we derived consolation from the fact. But the old line of demarcation between the well and the tuberculous had lost its value—too many of us belonged on the wrong side of the line! The distinction was soon made between tuberculous infection and tuberculous disease, and the line was now drawn between these two conditions.

Now the theoretical distinction between those who need treatment and those who do not is simple enough. The difficulty in practice is to determine who it is that requires treatment. Newly discovered methods of employing tuberculosis antigens seemed to promise aid, and many efforts have been made so to use tuberculin that it may detect tuberculous disease, and not confound the results by indicating also what is only tuberculous infection. Laboratory workers also have exhausted their ingenuity in devising combinations

of antigens which should reach the same end through the complement-binding reaction. I need not add that these various endeavours have proved fruitless, the reason of this being that a sharp line of distinction between infected individuals who have, and who have not, an active tuberculosis does not exist. The reactivity of the individual only, not his need of treatment, is indicated by such tests.

We have, therefore, felt compelled to continue to place our dependence upon physical diagnosis in order to distinguish between tuberculous infection and tuberculous disease. We are not, I think, altogether satisfied with the results that we obtain, yet in no other disease is the diagnosis so accurate as to details. In few other diseases is it even attempted to make a topical diagnosis, to determine past history, and to follow the course of the morbid process from month to month in the various portions of a single organ. We can do so much because of the extraordinary variety and delicacy of the signs furnished to us by the lungs. We command many resources. Is it not a fair question whether we make full use of them all? If I may be permitted a suggestion, I would say that our difficulties often arise from a too narrow view. The tuberculous lesion, as we find it outside of the period of infancy, is rarely the primitive lesion, and is only to be comprehended fully when we regard it as constituting one of the chapters of a perhaps long history. Some of the chapters of this prolonged record have been but little read. It is our ignorance of these chapters which should by all means be remedied.

Because of the assumption that the tuberculous lesion found, we will say, in the apex is the sole expression of the tuberculosis, that it is recent because recently discovered, and that it is active because recent, we are in danger of laying too much stress upon incipency, and too often confound the incipient lesion with the obsolete. We, as clinicians, do not always give due weight to the fact that the X ray usually shows the existence of a deep tuberculosis, a chapter in the history of the disease which is sealed to us so far as practical application of our knowledge is concerned. We practically ignore, as therapeutists, the deep-seated forms of tuberculosis of early life, which, whether or not they may be benefited by treatment, almost never, as a matter of fact, receive such treatment until too late. We do not as yet know how far the almost universal tuberculisation of our race is accompanied by a tuberculous process in the lungs, as well as in the tracheo-bronchial glands, discoverable by physical diagnosis or otherwise. We do not know whether immunisation may not necessarily depend upon past or present tuberculous

disease, whether the distinction between tuberculous infection and tuberculous disease after all may not exist.

Many familiar facts would seem to invite inquiry along such lines. We know of the practical universality of tuberculosis of the tracheo-bronchial glands; we know that the small parenchymatous focus, the Ghon focus if you please, is very common. This focus, with its enlarged regional hilus gland, and with the peribronchial and perivascular lymphangitis about the vessels which connect focus and gland, presents a complete pulmonary tuberculosis in miniature. We know that localised thickenings of the lines which proceed to the lower lobes from the hilus are very frequently seen in the radiograph. Such thickenings are often ascribed to other causes. Their tuberculous nature is proved, if, as is often the case, the thickened lines are accompanied by dots which can hardly be accounted for as anything else than tuberculous lymph-nodes. When did this process run its course, this deep tuberculosis now soundly healed? What is its significance as to the ultimate prognosis? How frequent is it?

When it was reported that some 86,000 French soldiers had fallen victims to tuberculosis under the conditions of military service, apprehension was felt by some in America lest our soldiers might also become a prey to the same disease. But at a later time it appeared that the large majority of these men had been rejected at entrance into the army, therefore had not acquired their disability in the military service; also that there was doubt whether the major portion of those in whom tuberculosis had been diagnosticated really had that disease. On the other hand, one authority thinks that these soldiers really had tuberculosis, but an abortive and healed tuberculosis which did not incapacitate for service. Such uncertainties as to the diagnosis of tuberculosis have led to error in all of the principal armies engaged in the late war. The example is cited as an illustration of the practical importance to the world in war as well as in peace of greater clarity in our views as to the minor abnormalities of the upper lobes. When such abnormalities are found in otherwise healthy persons, are they to be ascribed chiefly to atelectasis and congestion, or to non-tuberculous induration, or to a healed tuberculosis, or are many of the signs in reality not evidence of abnormalities at all, but due to the proximity of the bronchi?

We know that not only do the lower lobes in health often show markings ascribable to tuberculosis, but that quite as frequently similar localised thickenings of the lines which ascend from the hilus to the upper lobes are apparent in the radiograph, with or without other evidences of tuberculosis, in persons never known to

have been ill. We do not know from a large series of observations whether there is such a constancy between the physical findings and those of the X ray as to indicate that both series of phenomena are due to a single cause. Such questions are epidemiological questions, only to be solved by a long and unremunerative process of research which the physician cannot be expected to undertake unaided. They are at the same time relatively simple questions and easy of approach, sufficient time and money being given. They should be carried out not upon patients who believe themselves—or are—ill, but upon a multitude of healthy individuals, fair representatives of the population at large.

From the standpoint of the epidemiologist, it is surprising how little interest has been excited by the remarkable fact of the existing wide-spread infection with tuberculosis, and how few are the investigations which seek to get at the root of the matter.

For example, we hear constantly that tuberculin is of little value in adults, because so many of them react to it, and very similar statements are made as to the complement-binding reaction. But both the cutaneous and the complement-binding tests are too insensitive to reveal all of the tuberculosis infection. The important point—What is the meaning of the negative percentage in these reactions?—seems never to be considered.

In the description of a disease the natural method is to bring out most prominently its characteristics as they are found in the majority of the cases. Tuberculosis stands alone among the common and serious diseases which afflict mankind in that its characteristics, as they appear in the large majority of the infected population, receive but scant consideration, and indeed have practically not been studied at all.

My point will be clearer if we put the matter as follows: The tubercle bacillus is a highly resistant and widely disseminated micro-organism, which no person living in our present civilisation can long escape. The result of the incorporation of the bacillus is sooner or later an inflammatory reaction, which in most cases passes unnoticed. The majority of the population does not develop a tuberculosis which is clinically manifest, according, at least, to our present criteria, however great the exposure to the disease may subsequently be, and however bad the hygienic conditions. A certain minority in the population, however—an undesirably large minority, say one to seven or one to ten—fare less well. They develop a disease, usually of the lungs, which often proves fatal, though frequently ending in more or less complete recovery or arrest. Such cases may properly be called the failures in tuber-

culosis infection. From such a standpoint it would appear that the conspicuous success of the majority in escaping the evil results of a grave infection of which they have been the subjects might be worthy of serious consideration. We may well ask ourselves what it is that enables the majority to escape. How do they differ from the unfortunate minority who perish in the same surroundings? The answer must be, We do not know. We know at least what is not the chief reason for the development of manifest tuberculosis. It is not bad air, nor bad food, nor bad hygiene, nor overwork, nor race, nor unhealthy climate, for the majority of the members of our civilisation who are subjected to those various unfavourable influences escape. And if we take refuge in the word "predisposition" that is merely another name for ignorance. What percentage of civilised adults fail to react to the cutaneous tuberculin test with undiluted tuberculin? How many of those negative to the cutaneous test after repeated applications can be made to react to tuberculin administered intracutaneously or subcutaneously? If there remains a negative percentage after such tests, what is to be thought of the existence of tuberculous infection in such cases? In remote rural communities, where manifest tuberculosis has long been absent, does a negative reaction to tuberculin mean absence of infection or a high resistance? What is the meaning of a negative reaction to tuberculin in cases of bone and joint tuberculosis, in persons apparently healthy who are employees of tuberculosis sanatoria or are otherwise much exposed to infection, or in patients known to be tuberculous, yet at work and in fairly good health?

We need to know the conditions of the infection which results so favourably in the majority, as contrasted with the cases which terminate fatally. Is it a mere matter of dosage? Should the primary infection be minimal in amount, or does a large dose of tubercle bacilli determine a more vigorous reaction and give a better prognosis? In what year of life is it best that infection should first take place, or (what is not necessarily the same thing) become evident through reactivity to tuberculin?

Each independent pathologist seems to erect his own standards as to what is or is not to be considered evidence of a past tuberculosis, with the inevitable result of a considerable discordance in the findings of the individual investigators. This was conspicuous in the attempts made to determine the percentage of tuberculosis found at the autopsies of combatants in the late war. There can be no question that a not overwhelming tuberculous infection produces an allergy—call it immunity or not, as you please—which pro-

foundly affects the reaction of the tissues for an indefinite period. Such changes of reaction should be more marked among the successes than among the failures in tuberculous infection, and more marked in a ripened resistance than in a newly-established process. How strange that this point has not long ago attracted universal attention! The fact is that we know much as to the phenomena of a recent artificial infection, almost nothing as to the minute details of the pathological histology of the small and long-healed tuberculous lesion, and as little of the slowly and intermittently progressive, comparatively benign, deep tuberculous process in the lungs.

What disease so abounds in paradoxes as does tuberculosis! It is at once the most trivial and the most deadly of diseases. It has swept away whole tribes, living in perfect health in a salubrious climate, yet the teeming millions of the Orient continue to multiply despite its constant presence. The immortal discovery of Jenner robbed smallpox of its terrors, but at the expense of producing a local lesion not without its discomforts and even dangers. The "great white plague," on the other hand, though the most universal and the most constantly dreaded of diseases, effects a vaccination against itself in the bodies of the majority of mankind so easily, so painlessly, that the child passes through the momentous transformation unnoticed.

We have sought in vain to force tuberculosis into the mould of other infectious diseases—it is a law unto itself. We have learned enough to see that it is a disease which must be studied without prepossessions; to see that its immunity, though no less real, is not like the immunity of other diseases; that it can only be comprehended by taking into consideration the facts of the disease as it manifests itself in every clime and in every social status. Above all, we must not fail to study with care the tuberculosis of the uncared-for, unstudied majority of civilised mankind, for in the success unconsciously attained by this majority lies the hope of rescuing the minority who now fall beneath what we call the scourge of tuberculosis. For the study of this tuberculosis of the majority we need the accumulation of data by epidemiological investigations which should be prolonged beyond the usual period of activity of a single investigator, and which would require expenditures beyond the purse of the individual and of local institutions. If our attitude as physicians has been individualistic and our investigations parochial in scope we should not be blamed; we have done the best that we could as individuals with the time, the clinical opportunities and the

money at our disposal. For the broad view and for extended investigation is needed the guidance of a governing body, immortal in life because constantly renewed in membership, which can initiate a universally applicable policy—a body which shall garner and sift the results of observations extending over the world through the life-time of more than one generation; a body which, because it is international, shall be bound to follow no master and shall not be tempted through patriotism to exalt the findings of the one nor to depreciate the findings of the other school, which shall contain minds of the keenest logical powers to get at the very root of the matter, not forgetting *advocatus diaboli* to pick flaws, if possible, in such conclusions as may be reached; a body, too, which by its eminence and its world-wide connections shall be able to open the purse-strings of capital and command abundant resources. Where can such a body be found better than in the International Union against Tuberculosis?

In my opinion this body has an unrivalled opportunity for research, aside from the eminence of its members, in that it may assume work that is too prolonged, too tedious and too expensive for the ordinary investigator.

I had prepared a list of subjects worthy of investigation, but the time is short, and moreover it would be superfluous, even impertinent, to attempt suggestions to such an audience, more competent than I to institute investigations of this kind. I cannot, however, resist the desire to impress upon you one thought. It is this—a basal fact in phthisiology which has been established beyond the shadow of a doubt is that the large majority of civilised mankind are infected with tuberculosis. That they do not die of it is the best of proofs that tuberculosis is not necessarily an evil. May it not indeed be that the salvation of the people is to be sought in an optimal tuberculisation? The hope of entire freedom from infection with tuberculosis is surely illusory under present conditions.

We have learned by bitter experiences that war can only be conducted successfully with the aid of a perfect co-operation, and, wherever practicable, a thorough standardisation. The existence of the International Union shows that our leaders are alive to the advantages of international co-operation in the study of tuberculosis. Under their leadership may we not look forward to standardising our knowledge, to compelling the assent of the world by the accumulation of mountains of proved objective facts, so that some of the problems of to-day shall become the truisms of to-morrow—so that there may be laid, broad and deep, everlasting foundations

upon which our successors shall go on to build a perfect structure ?

In the preceding remarks upon the subject of the relations of the International Union against Tuberculosis to investigations of the difficult problems of tuberculosis I have endeavoured to maintain as objective an attitude as possible, and to speak of the simpler facts only of tuberculosis in the simplest words. Yet it is impossible to avoid language which shall reveal the speaker's standpoint. You know perfectly well what my views are. Furthermore, it is safe to say that you do not agree with me. I am perfectly sure that the majority of my hearers do not share all of my views. Now it is always pleasant for a speaker to feel that he carries his audience with him. But if I could have believed that you would agree with me, this address would not have been made. For the point of it all is our differences—our differences as to the fundamental questions, the basal facts of phthisiology. If the members of a body like that which I have the honour to address were all of accord upon these questions, the world would be ready to build upon that solid foundation for which it has so long waited in vain. But you on the one hand, and I upon the other, both parties with every desire to know the truth, see the truth in different ways; we are not of accord as to the fundamentals, perhaps do not agree as to what the fundamentals are. I have mentioned what I considered gaps in our knowledge, which it is desirable should be filled. My fundamentals are stated by way of examples as to lack of knowledge and lack of agreement. I have no wish to impose, and no expectation of imposing, my views upon you for your acceptance. I am not wedded to my views; all that I desire is the truth—that is all that you desire. But we differ; that is another very good example of lack of agreement!

Let us at least agree that the lack of agreement is regrettable. Let us do something to remove this stigma upon our science; I care not what, so long as the work accomplished brings as its reward some irrefutably established principles, some courses, however apparently insignificant, upon which in time the foundations may be completed, the superstructure begin to rise ! (Applause.)

Sir ROBERT PHILIP : Col. Bushnell, on behalf of this audience, I thank you very much for your eloquent and illuminating address.

Ladies and Gentlemen,—We have received—this audience, this International Union has received—this morning, a most gracious message from His Majesty King George. We are all deeply touched

by the kind thought which led His Majesty, in the midst of a very busy time, full of engagements, thus to speak to us at the commencement of our meetings. It is one of the many expressions which the Throne has given of its constant lively interest in everything that concerns the welfare of the citizens. (Applause.) May I ask that you authorise me, along with the Executive, to forward a reply to His Majesty in such terms as may seem meet? (Great applause.)

Before calling on Sir Arthur Stanley for an address, may I take the opportunity of saying that, in addition to the delegates whom we have welcomed, the Kingdom of the Serbs, Croats and Slovenes is represented here to-day? Unfortunately, the representative arrived rather late, but he desires you should know that his country is in evidence.

I have now the honour and very great pleasure of asking Sir Arthur Stanley, Chairman of Council of our National Association, to address you. (Applause.)

The Hon. Sir ARTHUR STANLEY, G.B.E. (Chairman of Council of the National Association for the Prevention of Tuberculosis): Your Excellencies, Ladies and Gentlemen, I know that it is out of order to begin one's remarks by disavowing the Chairman, but I equally know that I shall be entirely in agreement with you in doing so. Sir Robert Philip, our Chairman, has been kind enough to say that I was about to give you an address. 'I am about to do nothing of the kind. (Laughter.) I feel perfectly certain that the interest of the addresses that we have listened to this morning is quite enough for us to have for one day, and that you do not desire an address from me. As a matter of fact, an address on tuberculosis from myself might be somewhat amusing to the audience, because I am obliged to own to an absolute and profound ignorance on the subject; I am only here, as the Chairman of Council of the National Association for the Prevention of Tuberculosis, to do what others, like Sir Robert Philip, tell me. As long as I do that, I feel I am in safe hands.

Now, my pleasant duty to-day is to welcome the delegates from overseas, and the representatives who have come from all parts of these islands. Before I do so, I have been asked to make one or two announcements. The first is, as you will see by this book, we have tried to arrange some expeditions that we thought would interest some of the delegates and representatives. We have asked you to give the names of those who wish to go to these various

expeditions, and I ask you to be kind enough, if you want to take part in any particular trip, to let us have your name before 1 o'clock to-morrow, because the arrangements have to be made for trains and motors, and unless we know approximately the numbers who are going by mid-day, or by 1 o'clock, it will be very difficult to secure your comfort.

There is one other announcement I wish to make. The Government have been kind enough to issue invitations to luncheon to some of the overseas delegates, and to others. Many of them only received these invitations last night, and, therefore, have had no time to reply, but we hope that will not prevent their coming to the luncheon; they will be very welcome whether they have replied or not.

A small matter on which we have had a good many questions this morning is about the Lord Mayor's entertainment this evening. The Lord Mayor has been kind enough to throw open the doors of the Mansion House to all those present, and to the public generally. The usual rule—this is a thing about which I have been asked several times this morning—is that when you go to the Mansion House, those who have decorations wear them.

May I now fulfil my pleasant duty, and that is to welcome you here to-day? As Chairman of this Council, and in the Council's name as well as my own, I should have felt that any welcome I could give you was really inadequate, but happily the welcome now comes from a higher authority than I. We were privileged, at the outset of the formation of this Association, to have the advantage, not only of the presidency, but of the actual presence of His Majesty King Edward VII, when Prince of Wales. (Applause.) When His Majesty succeeded to the Throne, his place, as President of the Association, was taken by the then Prince of Wales, the King, who sent us such a gracious message this morning, King George V. When he succeeded to the Throne, the present Prince of Wales was not ready to take up matters of this kind, and we could not possibly find a better President than Lord Balfour of Burleigh, who had been for so long the Chairman of our Council. It is within the knowledge of the British representatives here that the Council has suffered a deep loss in the last few weeks by the death of their President, Lord Balfour of Burleigh. (Hear, hear.) When it came to our duty to try and fill his place, it was obvious that we should ask, in the first place, that the Prince of Wales should follow the example of his Grandfather and Father, and should head this Association for the relief of suffering and distress. (Applause.) I had the pleasure yesterday afternoon of receiving from Admiral Halsey, the

Prince of Wales' Comptroller, a letter in which he says: "I have had the honour of submitting your letter to His Royal Highness, who desires me to say that he will have very much pleasure in complying with the request." (Renewed applause.)

I am right, therefore, Ladies and Gentlemen, in saying that your welcome to-day comes from one who is higher than the Council, or even than myself, as Chairman of the Council ; it is in the name of our new President, His Royal Highness, the Prince of Wales, that I bid you most heartily welcome here to-day. We are honoured ; we are very proud of the fact of being able to gather together representatives from no less than thirty-nine countries of the world, who are all united in one common effort for the relief of suffering, and for a fight to the death against this terrible scourge of tuberculosis. In the name of the President, the Prince of Wales, I welcome you here to-day. I ask you to believe that we have only one wish in our minds, and that is to make your stay attractive here, to do everything we can to help forward this great movement, and to show you how heartily welcome you all are in London. (Applause.)

The Conference then adjourned.

III.

**DISCUSSION ON THE MODES OF DIFFUSION
OF TUBERCULOSIS THROUGHOUT THE
RACES OF THE WORLD.**

III.

SECOND DAY.

DISCUSSION ON THE MODES OF DIFFUSION OF TUBERCULOSIS THROUGHOUT THE RACES OF THE WORLD.

ON

WEDNESDAY, 27th JULY, at 10.30 a.m.

CHAIRMAN: Sir ROBERT PHILIP, M.D., LL.D.

Sir ROBERT PHILIP: Ladies and Gentlemen,—Before asking Professor Calmette to open to-day's discussion, I would like, with your permission, to make one or two announcements.

The following gentlemen have been nominated Honorary Vice-Presidents of the Conference:

Belgium.—Dr. Dewez.

Denmark.—Professor Faber.

France.—Professor Calmette and Professor Bezançon.

Great Britain.—Sir Arthur Stanley, Sir Humphry Rolleston and Sir George Newman.

Holland.—Professor Nolen.

Italy.—Senator Professor Pio Foà and Professor Ascoli.

Norway.—Professor Harbitz.

Spain.—Senator Espina y Capo.

Sweden.—Monsieur Cedercrantz.

United States.—Colonel Bushnell and Dr. Gerald Webb.

I am sure we have the concurrence of the delegates in these nominations. (Applause.)

With regard to the conduct of the two chief discussions, we shall begin with the speakers whose names are on the list in your hands. If anyone else desires to speak, will he kindly let us have his name in advance so that it may be duly announced.

As to time limit for speeches, openers of the discussion are allowed twenty to twenty-five minutes; thereafter subsequent speakers are expected to restrict their remarks to ten minutes. All remarks, or a *précis* of the remarks, should be handed to the Secretary, if the speaker desires to have his contribution included in the Report of the Conference.

Lastly, may I ask one representative of each country to be so good as to prepare a statement regarding the progress of the tuberculosis campaign in his own country during the past year? We leave it to the several groups of delegates to select who shall do it. This request was made in advance, but has not so far been complied with generally. We are anxious to have in the Report of the Conference such a note regarding the countries included in the International Union.

Now, Ladies and Gentlemen, it is my privilege to call on Professor Calmette to open our discussion on "The Modes of Diffusion of Tuberculosis throughout the Races of the World." (Applause.)

PROFESSOR CALMETTE (Paris)—

I. FRÉQUENCE DE LA TUBERCULOSE CHEZ LES PEUPLES CIVILISÉS.
SA RARETÉ CHEZ LES PEUPLES SAUVAGES OU NOMADES.

Depuis 1908, grâce aux procédés de diagnostic qui permettent de révéler la présence du bacille de Koch dans l'organisme humain, alors même qu'aucune lésion tuberculeuse n'apparaît cliniquement décelable, il est devenu possible d'instituer des enquêtes, à l'effet de déterminer, dans chaque pays, selon les âges, les sexes et les milieux sociaux, la proportion des sujets atteints d'infection bacillaire par rapport à ceux qui peuvent être considérés comme indemnes.

La méthode la plus communément employée, et d'ailleurs la plus pratique, est jusqu'à présent celle qu'a préconisée *Von Pirquet* (de Vienne) et qui consiste à insérer, dans deux légères scarifications faites sur la peau de l'un des bras, au niveau du muscle deltoïde, une gouttelette de tuberculine brute, soit pure, soit diluée au dixième.

Chez les sujets porteurs de lésions tuberculeuses, même *latentes*, ou simplement en état d'infection bacillaire, d'*allergie*, c'est-à-dire sensibilisés vis-à-vis du bacille de Koch,—on voit apparaître à la place des scarifications, au bout de 10 à 24 heures, quelquefois un peu plus tardivement, une papule de couleur rouge violacé, à contour régulier ou festonné, très caractéristique. Cette papule

reste apparente pendant cinq ou six jours, puis disparaît sans laisser de traces. Elle ne s'accompagne d'aucune fièvre, d'aucun trouble fonctionnel autre que de très légères démangeaisons.

Chez les sujets indemnes de toute infection bacillaire l'insertion cutanée de tuberculine, faite suivant la même technique, ne produit aucune réaction locale.

Les autres procédés utilisés pour produire les réactions tuberculiniques (instillation de tuberculine sur la muqueuse oculaire, injections intradermiques, injections sous-cutanées) présentent divers inconvénients qui, sauf dans certains cas particuliers, leur ont fait généralement préférer la méthode d'insertion cutanée de *Von Pirquet*.

Grâce à celle-ci, il est toujours possible, même chez les sujets de race noire, de déterminer avec une précision suffisante dans chaque famille, dans chaque ville ou village, dans chaque agglomération ou groupe social, le pourcentage des *indemnes* et celui des *bacillisés*.

C'est ainsi qu'on a pu, au cours des dernières années qui ont précédé la grande guerre, établir que l'infection tuberculeuse est inexistante ou très rare dans certains pays, par exemple parmi les tribus de l'Afrique équatoriale que la civilisation n'a pas encore pénétrées, alors qu'elle est extrêmement commune sous tous les climats dans les agglomérations urbaines et chez les peuples civilisés.

En 1908, *Cummins*, se trouvant en service dans la province soudanaise du Bahr-el-Ghazal, signalait l'absence de la tuberculose chez les indigènes, à l'exception de quelques cas importés. *H. Ziemann* n'en avait pas observé non plus dans l'hinterland du Cameroun, parmi les tribus Doualas, alors qu'au contraire elle devient fréquente au Natal, chez les Zoulous, au Transwaal, à Madagascar, et elle existe presque avec la même intensité qu'en Europe dans toutes les agglomérations urbaines de l'Afrique du Nord, tandis qu'elle se raréfie chez les Arabes et les Berbères qui vivent en tribus nomades au sud de la chaîne de l'Atlas.

En Afrique orientale, *Otto Peiper* observait, en 1911, que l'infection tuberculeuse, tout à fait rare chez les nègres qui vivent dans les huttes des villages indigènes et qui sont occupés aux travaux des champs, s'observe au contraire communément dans les agglomérations où ils se trouvent au contact d'indiens, d'arabes et d'européens. A Kilwa par exemple, dans une école, 23 p. 100 des enfants nègres, 100 p. 100 des indiens et 20 p. 100 des arabes fournissaient une réaction positive à la tuberculine. Dans la même localité, chez les adultes, on relevait 17 p. 100 de réactions positives parmi les nègres et 25.4 p. 100 parmi les indiens immigrés. Ceux-ci sont donc, de beaucoup, les plus atteints et ce sont eux, sans

doute, qui contribuent principalement à la diffusion de la maladie parce qu'ils sont davantage en contact avec les indigènes parmi lesquels ils exercent leurs commerces ou divers petits métiers.

Dans l'hinterland du Cameroun on trouve encore à peine 3 à 6 p. 100 de sujets adultes contaminés. Mais la tuberculose y fait de rapides progrès. Elle s'y propage à la faveur des échanges commerciaux et du retour des émigrés temporaires.

Dans toute l'Afrique occidentale et équatoriale, il n'existe plus guère que quelques tribus nomades, aux confins de la zone désertique du Sahara et du désert de Nubie, qui soient à peu près totalement épargnées. Il en est de même en Australie et dans les îles Océaniques.

L'étude comparée des statistiques de mortalité et de morbidité tuberculeuse des régions plus civilisées du globe montre que la *tuberculose-maladie*, principalement sous sa forme pulmonaire qui est toujours et partout la plus commune, est responsable en moyenne de 12 p. 100 des décès, parfois de 19 p. 100,—c'est le cas de la Suède et de la Norvège ;—jamais moins de 7.4 p. 100 dans les pays les plus privilégiés tels que la Belgique, l'Italie, le Portugal et l'Espagne.

C'est déjà un chiffre très élevé, et pourtant il ne correspond pas à la réalité des faits, car il est incontestable que beaucoup de sujets tuberculeux succombent à d'autres affections que leur tuberculose aggravées.

Mais si l'on se réfère aux statistiques de "tuberculations" qui ont été publiées récemment par un assez grand nombre d'auteurs et qui indiquent aussi exactement qu'on peut le souhaiter la proportion des sujets *en état d'infection bacillaire*, alors même qu'ils ne sont pas encore, ou qu'ils ne sont plus atteints de *tuberculose-maladie*, on constate que, dans les grandes villes comme Paris, Vienne, Prague, 20 p. 100 des enfants sont déjà contaminés à l'âge de 2 ans ; 55 p. 100 à 5 ans ; 90 p. 100 au-delà de 15 ans, et que 97 p. 100 environ des adultes réagissent positivement à la tuberculine !

On peut donc affirmer que, dans les grandes villes sur-peuplées d'Europe,—et il en est de même aux Etats-Unis,—presque aucun des sujets qui y naissent et qui y vivent jusqu'à l'âge adulte n'échappe à la contamination bacillaire, bien que, pourtant, chacun d'eux n'ait qu'un peu plus d'une chance sur huit de succomber à la tuberculose.

Dans les campagnes, sauf dans les régions où la population rurale est dense et où les relations avec les villes sont étroites et continues, la proportion des sujets infectés est souvent beaucoup moindre. Dans un village français situé au bord de la mer, sur la côte de la Manche, *Et. Burnet*, soumettant à l'épreuve tuberculinique

77 enfants de 0 à 10 ans, n'en trouve qu'un seul infecté à 5 ans, 2 à 6 ans, 4 à 7 ans, et 9 au total à la dixième année.

Par contre, *Hillenberg*, dans un canton d'Allemagne où la tuberculose pulmonaire est très rare, relève sur 810 enfants bien portants, 20 p. 100 de réactions tuberculiniques positives de 6 à 10 ans et 31, 5 p. 100 de 11 à 15 ans.

Lors de leur enquête sur l'épidémiologie de la tuberculose chez les Kalmouks, peuple de pasteurs des environs de la Volga, *El. Metchnikoff*, *Et. Burnet* et *Tarasewitch* constatent que, dans la partie centrale des steppes, région dont les habitants n'ont que peu de rapports avec les villes, la proportion des adultes réagissant positivement à la tuberculine est de 69·4 p. 100 pour les hommes, de 30·6 p. 100 seulement pour les femmes adultes, tandis qu'à la périphérie du territoire, où les relations commerciales avec la population russe sont très actives, 95·7 p. 100 des hommes adultes et 88·5 p. 100 des femmes fournissent une réaction positive.

La tuberculose frappe donc toutes les races humaines. S'il existe entre les populations des divers pays, ou dans un même pays entre les populations de diverses origines (par exemple : Nègres, Indiens, Japonais ou Chinois, Européens du Nord ou du Sud, Métis, etc.) des différences souvent considérables dans la mortalité tuberculeuse, ces différences résultent seulement de ce que l'infection bacillaire s'est implantée depuis plus ou moins longtemps chez elles et de ce que les occasions d'infection s'offrent à elles, tantôt plus rares, tantôt plus massives ou plus fréquentes, suivant les conditions d'existence qui leur sont propres.

C'est un fait bien connu que les peuples qui ont été le plus longtemps préservés par leur isolement insulaire, par les difficultés des échanges commerciaux ou par la faible densité de leurs groupements, se montrent les plus sensibles. Tel est le cas des Sénégalais venus de France pendant la grande guerre, ou encore celui des jeunes gens de Bosnie et d'Herzégovine qui furent versés dans les régiments autrichiens. La maladie prend chez eux des formes le plus souvent graves, à évolution rapide, analogues à celles que nous observons en Grande Bretagne ou en France chez les jeunes enfants exposés aux contaminations familiales massives.

Les peuples de vieille civilisation, contaminés depuis des siècles, plus exposés à l'infection dès le jeune âge par la cohabitation plus ou moins étroite et prolongée avec des malades semeurs de bacilles,—tels les Juifs misérables entassés dans les ghettos de Lemberg ou de Cracovie,—sont au contraire plus résistants. La maladie affecte ordinairement chez eux des formes chroniques à évolution très lente;

mais presque tous les sujets sont atteints, et ceux qui, pendant leurs années d'enfance, ou de jeunesse, ont par hasard échappé à l'infection bénigne ou grave, offrent au virus une sensibilité égale à celle des sujets de races vierges.

La tuberculose est donc, chez l'homme, une conséquence de la civilisation.

Il en est de même chez les animaux de l'espèce bovine qui y sont particulièrement sensibles. Les bœufs sauvages de Madagascar ou des steppes argentines en sont indemnes. La domestication l'a fait apparaître et elle est devenue plus fréquente et plus grave dans les troupeaux soumis à la stabulation prolongée que dans ceux qui passent toute leur existence en demi-liberté dans les pâturages.

II. LES SOURCES DE VIRUS TUBERCULEUX.

La dissémination de l'infection tuberculeuse humaine à travers le monde est exclusivement réalisée par les *semeurs de germes virulents*.

Ceux-ci sont, le plus souvent, les *phthisiques* qui, avec les produits de leurs expectorations et de leurs excréctions intestinales, dispersent d'innombrables bacilles, soit directement, soit par l'intermédiaire d'objets souillés par eux, ou de véhicules animés, tels que les mouches.

Mais les recherches expérimentales récentes ont apporté la preuve qu'ils ne sont pas seuls en cause. Il est établi désormais qu'une foule de sujets, en apparence sains, porteurs de lésions tuberculeuses latentes ou occultes décelables seulement par les réactions tuberculiques, éliminent par intermitences des bacilles avec leurs excréctions glandulaires ou intestinales et peuvent ainsi répandre l'infection dans les milieux qu'ils fréquentent.

Cette démonstration a d'abord été faite en 1906 aux Etats-Unis par *E. C. Schroeder et W. E. Cotton*, du "Bureau of Animal Industry" de Washington, sur les bovidés. Ces savants avaient constaté que 40 p. 100 des vaches qui réagissent à la tuberculine et qui ne présentent aucune lésion cliniquement décelable, émettent de temps en temps des bacilles dans leurs déjections, et que les porcs, nourris avec des aliments souillés par celles-ci, se contaminent avec la plus grande facilité.

Un peu plus tard, en 1909, j'ai fait, en collaboration avec *C. Guérin*, la preuve que l'élimination des bacilles introduits dans la circulation sanguine s'effectue, au moins partiellement, par les voies biliaires.

Nous injectons dans la veine marginale de l'oreille, à des lapins, 1 centigramme de bacilles bovins finement émulsionnés. Ces animaux étaient sacrifiés à des intervalles variables de 24 heures à 7 jours après l'inoculation. Le contenu de leur vésicule biliaire était immédiatement centrifugé et le culot inoculé à des cobayes. On trouvait ainsi que la plupart des cobayes qui avaient reçu la bile des lapins sacrifiés à partir du 3^e jour après l'infection contractaient la tuberculose. Il est donc évident qu'une partie des bacilles introduits dans le torrent circulatoire peut être éliminée par la glande hépatique et évacuée avec la bile dans l'intestin.

Nous avons fait, en 1911, une expérience encore plus démonstrative en créant chez deux jeunes bovins une fistule biliaire permanente qui permettait de puiser à volonté dans la vésicule, à l'aide d'une pipette, la quantité de bile nécessaire aux inoculations d'épreuve.

L'un de ces animaux reçut d'abord dans la veine jugulaire 3 milligr. de bacilles tuberculeux virulents, d'origine bovine. Ensuite, chaque jour on préleva dans la vésicule une petite quantité de bile dont on injectait Occ. 5 à 4 cobayes. Sur 109 cobayes ainsi inoculés, 15 devinrent tuberculeux. La bile ne s'est montrée virulente qu'à partir du 19^e jour après l'infection.

Parallèlement, nous faisons la preuve de la virulence des déjections d'un autre jeune bovin qui avait reçu dans les veines une émulsion de bacilles humains. Sur 66 cobayes inoculés chacun avec 0.1 gr. de déjections, 3 devinrent tuberculeux. Mais il convient d'observer que la quantité d'excréments reçue par chaque cobaye était infime si on la rapporte à celle émise par le jeune bovin en 24 heures et qui est d'environ 7 à 8 kilogrammes.

E. Joest et *E. Emshoff* ont également constaté la fréquence de l'élimination des bacilles par la bile des animaux naturellement infectés. Ils ont étudié à ce point de vue, au moyen d'inoculations au cobaye, la bile de bœufs ou de porcs tuberculeux. Sur 57 expériences, ils ont obtenu 14 résultats positifs.

D'autres travaux confirmatifs des mêmes faits ont été publiés par mes élèves *M. Breton*, *Mézie* et *Bruyant* en 1912, puis par *C. Titze* et *E. Jahn* et par *Lydia Rabinowitsch* en 1913 à Berlin.

Il est également établi par plusieurs expérimentateurs en particulier en France par *Nobécourt* et *Léon Bernard*, que l'excrétion des bacilles par le rein s'observe parfois dans les diverses formes de tuberculose de l'enfance.

Cette excrétion peut aussi se réaliser par les glandes mammaires. *Lydia Rabinowitsch* et *Kempner*, *Karlinski*, en Allemagne, *Moussu* en France, *John Mohler*, *Schroeder* et *Cotton* aux Etats-Unis,

Sheridan Delépine et la *Commission royale anglaise* ont publié des faits prouvant indiscutablement que les vaches, et aussi les chèvres apparemment indemnes de toute lésion mammaire, mais réagissant à la tuberculine, émettent parfois des bacilles dans leur sécrétion lactée.

Titze a même montré que, lorsqu'on injecte des bacilles tuberculeux par voie intraveineuse à une vache en lactation, ces bacilles commencent à apparaître dans le lait aux environs de la 3^e semaine, et ils ont persisté, chez un animal, jusqu'à 144 jours.

Dans l'espèce humaine, il ne semble pas que les résultats soient différents si l'on en juge par les faits rapportés par *Escherich*, *Roger* et *Garnier*, *Guillemet*, *Moussu*, *Rappin*, *Fortineau* et *Patron*, *O. Fuster* (de Vienne). *Kurashige*, *Mayeyama* et *Yamada*, au Japon, dans une série d'expériences étendue à 20 femmes tuberculeuses en lactation, découvrirent des bacilles dans le lait de 17 d'entre elles, soit chez 85 p. 100. Or, de ces 20 femmes, 9 étaient au premier stade de la maladie ou n'avaient que des lésions ganglionnaires.

On sait que les formes graves de tuberculose, chez l'enfant et chez l'adulte vierge de toute contamination antérieure, résultent généralement d'infections peu abondantes, mais fréquemment répétées. De telles infections peuvent incontestablement se produire, soit par l'allaitement, soit par la cohabitation prolongée, soit par des contacts accidentels avec *des semeurs intermittents de bacilles*.

Il semble donc évident que lorsque la tuberculose apparaît dans des milieux où l'on ne découvre aucun phtisique, elle n'a pu s'introduire que par suite de la présence, dans ces milieux, de quelque bacillifère occulte, sain en apparence, qui dissémine autour de lui de temps en temps soit par ses excréments, soit par certaines sécrétions glandulaires,—principalement par le lait s'il s'agit de sujets en lactation,—des germes virulents.

On comprend que l'infection bacillaire ait pu s'infiltrer ainsi, de proche en proche, par les explorateurs, les navigateurs ou les marchands, dans les régions du globe qu'on eût pu croire les mieux préservées par leur isolement et où les tuberculoses animales n'existaient pas.

Ce fut le cas, entre autres exemples, des îles malaises et polynésiennes du Pacifique, du Groenland, de la Laponie. Dans ces pays de contamination récente, les formes graves à évolution rapide, tout-à-fait analogues à celles que l'on observe dans nos pays chez le jeune enfant, sont la règle.

Que conclure de tous ces faits, sinon que l'observation et

l'expérimentation sont d'accord pour nous fournir d'abondantes preuves du rôle incontestable que jouent les tuberculeux occultes, porteurs sains de bacilles tuberculeux, dans la diffusion de la tuberculose à travers le monde ?

Il ne faut pas nous dissimuler que la connaissance récemment acquise, de ce danger jusqu'alors insoupçonné, rend singulièrement plus difficile l'organisation de la défense sociale contre la tuberculose que s'il s'agissait seulement de baser la prophylaxie sur l'éducation et l'isolement des phtisiques.

Sans doute, il reste toujours vrai que ces derniers sont, de beaucoup, les principaux facteurs de dissémination de la maladie. Mais nous devons mettre l'humanité en garde contre les possibilités d'infection provenant des innombrables sujets, en apparence parfaitement sains, dont l'organisme n'est que légèrement infecté dont les lésions, limitées à quelques ganglions, peuvent rester indéfiniment latentes, et qui sont cependant susceptibles de contaminer leur entourage.

On ne peut envisager la possibilité de protéger efficacement les enfants et les populations des contrées encore relativement indemnes qu'à condition d'organiser partout où c'est possible, un système de *dépistage* basé à la fois sur l'emploi judicieux des réactions tuberculiques locales et sur l'examen clinique du système ganglionnaire, principalement au moyen de la radioscopie.

Il ne faut évidemment pas songer à interdire aux sujets trouvés suspects l'exercice de certaines professions, ni les voyages, ni la cohabitation avec les sujets sains ; mais on peut espérer par une surveillance et une éducation appropriées, les rendre inoffensifs.

C'est vers ce but que doivent tendre les œuvres anti-tuberculeuses et les services sanitaires de chaque pays. (Applause.)

PROFESSOR CALMETTE (Paris)—

I. FREQUENCY OF TUBERCULOSIS AMONG CIVILISED PEOPLES : ITS RARITY AMONG THE UNCIVILISED AND NOMADIC.

Since 1908 certain diagnostic procedures have enabled us to detect the presence of the bacillus of Koch in the human body, even when no tuberculous lesion is clinically demonstrable ; and, thanks to these procedures, it has become possible to undertake surveys in each country, with a view to determining for age, sex and social class the ratio between subjects infected with the tubercle bacillus and those who may be regarded as infection-free.

The most commonly employed and most practical method up to now is that recommended by von Pirquet, of Vienna, which consists in making two slight scarifications of the skin over the deltoid muscle and introducing therein a small drop of raw tuberculin, pure, or diluted 1 in 10.

In persons who have tuberculous lesions, even though *latent*, or who are simply in a state of bacillary infection, of *allergy*, or, in other words, sensitised to the bacillus of Koch, a papule is seen to appear at the sites of scarification after ten to twenty-four hours, or occasionally a little later. This papule is of violet-red colour, has a regular or festooned margin, and is very characteristic; it remains visible for five or six days, and then disappears without leaving any trace. There is no accompanying fever nor any functional disturbance except a mild itching.

In individuals entirely free from any tuberculous infection the introduction of tuberculin into the skin, by the same technique, causes no local reaction.

The other procedures for introducing tuberculin reactions (instillation of tuberculin into the conjunctival sac, intradermic injection, subcutaneous injection) present various objectionable features which have made the cutaneous method of von Pirquet generally to be preferred, except in certain special cases.

By means of the latter it is always possible, even in the black race, to determine with sufficient accuracy the percentage of bacillus-free and bacillus-infected individuals in a given family, town or village, or in any large or small social group.

Thus in the course of the years just before the great war it was proven that tuberculous infection is non-existent or very rare in certain countries—for example, among the African tribes about the Equator where civilisation has not yet penetrated. On the other hand, the disease is extremely prevalent in large cities and among civilised peoples of all climates.

In 1908 Cummins, who was then serving in the Sudan district of Bahr-el-Gazal, called attention to the absence of tuberculosis among the natives, with the exception of certain imported cases. H. Ziemann had not observed it in the hinterland of the Cameroons, among the Douala tribes, while it becomes frequent at Natal, among the Zulus, in the Transvaal and in Madagascar. Moreover all the larger cities of North Africa show almost the same incidence as in Europe, while the disease is rare among the nomadic tribes of Arabs and Berbers to the south of the Atlas Mountains.

In East Africa Otto Peiper observed in 1911 that tuberculous

infection was quite rare among the negroes living in the huts of the native villages and working in the fields, but common, on the other hand, in the large groups where the negroes were to be found in contact with natives of India, Arabs and Europeans. At Kilwa, for instance, in one school, 23 per cent. of negro children, 100 per cent. of Indians and 20 per cent. of Arabs gave positive tuberculin reactions. In the same locality 17 per cent. of adult negroes and 25·4 per cent. of immigrated Indian adults reacted positively. The latter therefore are much the most infected, and they probably are chief contributors to the diffusion of the disease, because they are more in contact with the aborigines, among whom they trade or have various unimportant occupations.

In the region back from the coast of Cameroons scarcely more than 3 to 6 per cent. of adults are as yet found infected. But tuberculosis is making rapid advances. It is propagated through the medium of commercial operations and the return of those who have temporarily emigrated elsewhere.

Over the whole of West and Equatorial Africa there are no longer more than a few nomad tribes, on the edges of the Sahara and the Desert of Nubia, who are still almost entirely free from the infection. The same applies to Australia and the islands of Oceania.

Comparative study of statistics as to tuberculosis mortality and morbidity in the most civilised parts of the world shows that *tuberculosis as a disease*, chiefly in its pulmonary form, which is always and everywhere the most common, is responsible for an average of 12 per cent. of deaths, at times for 19 per cent., as in the case of Sweden and Norway. It accounts for never fewer than 7·4 per cent. of deaths in the most favoured countries, such as Belgium, Italy, Portugal and Spain.

This figure, very high though it be, does not give the true state of affairs, since many tuberculous persons die unquestionably of other affections which have been aggravated by their tuberculosis.

But when we refer to the statistics of tuberculin reactions, which have been recently published by a good many authors, and which indicate with all desirable accuracy the ratio of individuals in a state of *infection by the tubercle bacillus*, although they are not yet or are no longer ill with the *disease tuberculosis*, it is found that, in the large cities like Paris, Vienna and Prague, 20 per cent. of children are already infected at the age of two years, 55 per cent. at 5 years, 90 per cent. above 15 years, and that about 97 per cent. of adults react positively to tuberculin !

It may therefore be asserted that in the large, overcrowded cities of Europe—and the same applies to the United States—almost no one who is born there and lives on to adult life escapes tuberculous infection, although the chances of death from tuberculosis are little more than 1 in 8.

In the country the proportion of infected persons is often much smaller, except in regions where the rural population is dense and where there is frequent and continuous intercourse with towns. In a French village on the English Channel coast Et. Burnet performed the von Pirquet test upon 77 children under ten years of age and found only 1 infected at five years, 2 at six years, 4 at seven years, and 9 in all at the tenth year.

On the other hand, Hillenberg observed among 810 healthy children in a German district where pulmonary tuberculosis is very rare, 20 per cent. of positive tuberculin reactions from six to ten years and 31·5 per cent. from eleven to fifteen years.

In the course of their investigation into the epidemiology of tuberculosis among the Kalmucks (a pastoral people living in the Volga region), El. Metchnikoff, Et. Burnet and Tarassewitch found that in the central portion of the steppes, where the inhabitants have little intercourse with towns, the proportion of adults giving a positive tuberculin reaction is 69·4 per cent. for men and only 30·6 per cent. for women. At the same time, on the outskirts of the territory, where commercial relations with the Russian population are very active, 95·7 per cent. of male adults and 88·5 per cent. of women show a positive reaction.

Tuberculosis, therefore, attacks all human races. Whenever there are differences—which differences are often very important—in the tuberculosis death-rate of various countries or of divers races living in the same country (for instance, negroes, Hindus, Japanese, Chinese, Southern or Northern Europeans, half-breeds, etc.), these differences are simply due to the fact that tuberculous infection has been implanted in these races over a longer or shorter period of time, and that infections are variable, being at times more rare, or again more massive or frequent according to the particular modes of life.

It is a well-known fact that people who have been longest protected by virtue of their isolation upon islands, by the difficulties of commercial relations or by the absence of crowding in the settlements, prove to be the most susceptible. So it is with the Senegalese who came to France during the war, and also with the young men of Bosnia and Herzegovina who were drafted into the Austrian

regiments. In them the disease is usually of a severe, rapidly-progressing type, analogous to that which we observe in Great Britain or France in young children exposed to massive family contagion.

On the other hand, the older civilised races are more resistant—they are races which have been contaminated for centuries and exposed from infancy through more or less intimate and prolonged living with patients who were disseminators of bacilli—such as the wretched Jews in the ghettos of Cracow and Lemberg. In them the disease assumes chronic, very slowly progressive forms, but nearly all are affected, and those individuals who, in their childhood or youth, perchance escaped a benign or serious infection, are just as susceptible to the virus as members of races free from infection. In man, therefore, tuberculosis results from his civilisation.

This is equally true of animals of the bovine species, which are particularly susceptible. The wild cattle of Madagascar and of the pampas of the Argentine are free from tuberculosis. Domestication causes it to appear, and the disease has become more frequent and more serious in herds long confined than in those living always on the grazing lands in a semi-wild state.

II. THE SOURCES OF THE VIRUS OF TUBERCULOSIS.

The spread of human tuberculosis infection throughout the world is entirely due to *disseminators of virulent bacilli*. These are most frequently persons suffering from *phthisis*, who scatter an enormous number of bacilli in their sputum and intestinal excretions, either directly, or by means of objects soiled by them, or again through living carriers, such as flies.

Recent experimental researches have shown, however, that such persons are not the only factor. It is now proven that there is a very large number of apparently healthy individuals with latent or concealed tuberculous lesions which can be detected only by tuberculin reactions, who eliminate bacilli intermittently in their glandular or intestinal excretions, and who, in this way, may spread infection in their environment.

This was originally demonstrated on cattle in 1906 in the United States by E. C. Schroeder and W. E. Cotton of the Bureau of Animal Industry, Washington. These investigators found that 40 per cent. of cows giving a positive tuberculin reaction and showing no clinically demonstrable lesion discharge bacilli from time to time

in their excreta, and that swine given food contaminated by the latter become infected very easily.

A little later, in 1909, collaborating with C. Guérin, I proved that the elimination of bacilli injected into the blood-stream takes place, at least partially, through the bile-passages.

We injected 1 cgrm. of a fine emulsion of bovine bacilli into the marginal ear-vein of rabbits. The animals were killed at intervals varying from twenty-four hours to seven days after inoculation. The contents of the gall-bladder were immediately centrifugalised and guinea-pigs inoculated with the sediment. It was observed in this way that most of the guinea-pigs which had been injected with the bile of rabbits killed more than three days after infection became tuberculous. It is therefore evident that some of the bacilli introduced into the blood-stream may be eliminated by the liver and discharge with the bile into the intestine.

In 1911 we performed a still more conclusive experiment. A permanent biliary fistula was created in each of two calves. Through this the amount of bile necessary for test inoculations could be withdrawn at will with a pipette.

One of these animals was injected first with 3 mgrm. of virulent bovine tubercle bacilli in the jugular vein. Then, on each day thereafter, a small quantity of bile was taken from the gall-bladder, and 0.5 c.c. injected into 4 guinea-pigs. *Of the 109 guinea-pigs so inoculated, 15 became tuberculous.* It was not until nineteen days after infection that the bile was shown to be virulent.

At the same time we proved the virulence of the dejections of another calf which had received an emulsion of human bacilli intravenously. Of the 66 guinea-pigs inoculated, each with 0.1 gr. of excreta, 3 became tuberculous. It should be remarked, however, that the quantity of material injected into each guinea-pig was exceedingly small compared to the amount—about 7 to 8 kgrm.—discharged in twenty-four hours by the calf.

E. Joest and E. Emshoff have also noted how frequently bacilli are eliminated through the bile in naturally infected animals. From this point of view they made a study of the bile of tuberculous cattle and swine, inoculating the material into guinea-pigs. In 57 tests they obtained 14 positive results.

Other researches, which confirm these same facts, were published by my assistants, MM. Breton, Mézie and Bruyant in 1921, then by C. Titze and E. Jahn, and by Lydia Rabinowitsch in 1913 at Berlin.

Several workers, and especially Nobécourt and Léon Bernard in France, have also proved that excretion of bacilli through the

kidneys is sometimes observed in the various forms of tuberculosis of childhood.

This excretion may also take place through the mammary glands. Lydia Rabinowitsch and Kempner, Karlinski in Germany, Moussu in France, John Mohler, Schroeder and Cotton in the United States, Sheridan Delépine and the British Royal Commission have published facts which prove unquestionably that cows, and also goats, having apparently no mammary lesion, but reacting to tuberculin, sometimes excrete bacilli in their milk.

Titze has even shown that when tubercle bacilli are injected intravenously into a lactating cow, they begin to appear in the milk towards the third week; in one animal they persisted up to the one hundred and forty-fourth day.

Results do not seem to be otherwise in the human race, if we are to judge from the facts reported by Escherich, Roger and Garnier, Guillemet, Moussu, Rappui, Fortineau and Patron, and O. Fuster of Vienna. Kurashiga, Mayeyama and Yamada in Japan, in a series of examinations covering 20 tuberculous lactating women, discovered bacilli in the milk of 17—that is, in 85 per cent. It is to be noted that of these 20 women, 9 were in the first stage of the disease or had only glandular lesions.

It is known that in children and in previously non-infected adults, the serious forms of tuberculosis are usually caused by slight but frequently repeated infections. Such infections may undoubtedly be produced either through breast-feeding or by prolonged living or accidental contact with intermittent disseminators of bacilli.

When tuberculosis appears in environments where no case of phthisis is discovered, it seems evident therefore that the disease was able to introduce itself only through the presence of some bacillus carrier, unknown and apparently healthy, who spread virulent germs about him from time to time, either in his excretions or through certain glandular secretions—principally in the milk in the case of lactating women.

We can understand thus how tuberculous infection, carried by explorers, navigators and traders was able to gradually penetrate to parts of the world which might have been regarded as enjoying the best of protection in view of their isolation, and where tuberculosis did not exist in animals. This was the case, for instance, in the Malayan and Polynesian islands of the Pacific, in Greenland and in Lapland. In these recently contaminated countries the more serious and rapidly progressive forms are the rule, and they are quite analogous to those observed in our countries in young children.

What is the conclusion to be drawn from these facts, if not that both observation and experimentation are agreed in giving us numerous proofs of the unquestionable rôle played in the diffusion of tuberculosis throughout the world by individuals with occult tubercloses, the healthy carriers of tubercle bacilli?

We must realise that the recently acquired knowledge of this hitherto unexpected danger makes the organisation of social defence against tuberculosis much more difficult than when prophylaxis had to be based only on the education and isolation of phthisical patients.

It remains true, of course, that the latter are by far the principal factors of dissemination of the disease, but we must warn humanity against the possibilities of infection coming from the innumerable apparently perfectly healthy individuals who are but slightly infected, with lesions limited to a few glands. Such lesions may remain indefinitely latent, yet those who harbour them may be capable of contaminating their environment.

The possibility of efficiently protecting the children and the general population of countries which are still comparatively free from tuberculosis can only be contemplated on the condition of re-organising, wherever possible, a system of detection (*dépistage*) based upon both a judicious use of tuberculin tests and on clinical examination of the glandular system, mainly by means of radio-scropy.

It is obvious that we must not think of forbidding suspected individuals from entering certain professions, nor from travelling or living with the healthy, but we may hope through appropriate supervision and education to render them harmless.

This, then, is the goal toward which organisations for the prevention of tuberculosis and the health departments of every country should strive. (Applause.)

Professor Sir G. SIMS WOODHEAD (Great Britain): Mr. President, Ladies and Gentlemen,—We have listened with intense interest to the magnificent paper contributed by Prof. Calmette, a brilliant experimenter, an indefatigable worker, and a sound initiator of working hypotheses—truly a wonderful combination. Here are culled the results of patient work and lucid reasoning. I think, however, that Prof. Calmette would be the first to acknowledge that he does not expect us to accept off-hand all his theses, though, no doubt, he would contend that he has brought forward matters for serious consideration and argument—matters to be carefully and intelligently probed

and tested. In an assembly such as ours, and that at short notice, it would be very difficult for him to bring forward further and convincing evidence against any countering of his statements.

Your Executive and Council have decided, I think very reasonably, that the several speakers taking part in this discussion should be asked to confine their remarks to one special branch or phase of the subject of tuberculous infection dealt with in Prof. Calmette's paper, and to me has been allotted that concerned with the relation of the bovine tubercle bacillus as a causative agent of tuberculosis in man.

What strikes one in Prof. Calmette's paper is that geographical considerations seem to play a very important part in the arguments brought forward as regards the spread of tuberculosis. In Japan it is very evident that the tubercle bacillus of human origin—the type usually associated with tuberculosis in man—takes, relatively, a much larger share in the process of infection than it does in certain of our cities: for example, Edinburgh, where in the early eighties of last century I brought together a series of statistics bearing on post-mortem examinations I had the opportunity of making in the Royal Hospital for Sick Children. I was then greatly impressed by the large number of cases in which abdominal infection was present, and by the frequency with which glandular tuberculosis was a manifestation of the disease.

Whilst thus engaged I was called in consultation to a large public institution in the North of Scotland, where extraordinarily large numbers of patients, especially the younger patients, were becoming tuberculous, glandular tuberculosis appearing to be much more rife than usual. I found that these patients were receiving the milk from cattle reared and kept on the institution farm, the pigs getting such milk as was not consumed by the patients. Practically all these pigs were found to be suffering from tuberculosis, especially of the submaxillary glands, whilst many suffered from tuberculosis of the bones and glandular tuberculosis in other parts. Here the udders of three of the cows supplying the milk were the seat of advanced tuberculous disease.

This demonstration led me to increase my efforts to trace tuberculosis amongst the cattle from which the Edinburgh milk supply was derived. Indeed, the matter appeared to be so important and an intestinal portal of entry seemed to be so clearly indicated that, with the assistance of Principal—now Sir John—McFadyean a careful examination of the Edinburgh dairies and milk-shops was made, and we were able to show (1) that 30 per cent. of the cattle in the Edinburgh dairies were tuberculous, and (2) that 16 per cent.

of the samples of milk that were being distributed to the inhabitants of certain districts in Edinburgh contained tubercle bacilli, often in considerable numbers.

The post-mortem examination at the Sick Children's Hospital had showed that a very large proportion of the children who died from tuberculosis were suffering from mesenteric tuberculosis; that a considerable, though smaller, percentage suffered from ulceration of the intestine, that many died from tuberculous meningitis, and that in these cases there was distinct evidence of infection of the mesenteric and associated glands, and, indeed, of the other glands of the body.

From all this it appeared reasonable to conclude—though at that time we had not all the facilities for diagnosis that we have at the present day; *e. g.* we had not determined the minimal dose of injection, method of diagnosis between the two types of bacilli, human and bovine, the special morphology of the two types had not been worked out, nor were we able to determine from other features, biological and chemical, what type of tubercle bacillus we were dealing with—that we had to deal with an infection from a bovine source, and that the infective material was conveyed by the tuberculous cow to the patient through the medium of raw or unboiled milk. This method of infection had already been demonstrated at a very early stage in the researches on the prevention of tuberculosis; there was nothing new in our observations on this point, but that there should be such infection on this very extensive scale was very startling, and for many years grave doubts were expressed by various observers—Koch and others—as to the accuracy of our figures.

Later, investigations in practically every country in the world, but especially in Edinburgh, have dispelled these doubts, and many workers have arrived at conclusions practically identical with these early findings of ours. Unfortunately I am afraid, as the Minister of Health said yesterday, that many people are still of opinion that few advances in the prevention and treatment of consumption, either from the scientific or practical point of view, have been made. We *have* made advances—very marked advances—along both these lines, and anyone who will take the trouble to study the magnificent treatise published a year ago by Prof. Calmette, or will read Dr. Cobbett's compendious work, cannot but realise that, whatever may be the popular belief, we do not stand where we did not only as regards our knowledge of the modes of infection, but also as to our knowledge of treatment.

We have ample evidence of this in the results obtained in this country from investigations carried out by the Royal Commission on Tuberculosis—I am glad to see the Secretary of that Commission, Dr. Steegmann, here this morning to take part in our discussions—by the Local Government Board and by the Medical Research Council. The output of valuable reports, books and papers from these sources has been enormous, whilst private enterprise and individual investigations have been almost as prolific in their contribution to our knowledge. Indeed, it is only because this knowledge has not yet passed into general circulation or filtered down to the strata of practical application that it has not been more fully utilised, and I am convinced—and I am sure Sir George Newman will agree with me in this—that it is only because the knowledge gained has not been turned to practical account, that we have not made still greater headway in our attacks on tuberculosis.

It is now possible to distinguish the bovine type of the tubercle bacillus from the human type. Nay, more, we know something of the mode and channels by which it infects. Prof. Calmette has just reminded us that the mammary gland in the cow may become the site in which bacilli circulated in the blood-stream may come to rest, even when we have no clinical evidence of localised tuberculosis in that gland. What a danger this becomes in a milch cow! Immediately after the birth of the calf, the colostrum—the first milk—is exceedingly rich in fat and has a very high colour, due not only to the cream present, but to the presence of a large number of red blood-corpuscles that have escaped from congested blood-vessels into the milk. It follows that the tubercle bacillus, a very much smaller body than the red blood-corpuscle, is able to pass from the blood in which it is circulating and from the lymph into the mammary gland secretion, into milk that may be taken by infants. This, quite apart from other definite and direct evidence, indicates the presence of a real danger of infection by bacilli passing from the circulating blood into the mammary gland. I think it ought to be made clear that the tubercle bacillus is not only present in the milk of tuberculous cows, but far more frequently and in greater numbers than is popularly supposed, and that from this vantage-ground it sets up special forms of tuberculosis in children and does an immense amount of damage.

Of this we have evidence, both direct and indirect. In tuberculous children it is found that the cervical glands—the glands of the neck—the glands in the abdomen, and the bones are the special seats of tuberculous processes. Stanley Griffith, Fred Griffith and

Eastwood, Fraser and Philip Mitchell, to mention but a few of the British observers, pointed out that in from 50 to 90 per cent. of the cases in which these structures are affected the organism found is of the bovine type. The type of the resulting tuberculosis is said to be a less fatal form of the disease, but often, undoubtedly, ends in tuberculous meningitis or general marasmus. No claim is made that the bovine bacillus in milk accounts for all tuberculosis, but it must be seen that from $6\frac{1}{2}$ to 10 per cent. of the deaths from tuberculosis (especially amongst children) result from bovine infection.

But there is something more than this. I remember Dr. Patrick H. Watson, a famous Edinburgh surgeon who served in the Crimean war, used to say, "Gentlemen,—we are in danger of ignoring our secondary digestive apparatus, the great system of lymphatic glands." In the present connection this is a very illuminating statement. In bovine tuberculosis, as already noted, these lymphatic glands are specially picked out for attack, and are rapidly rendered functionless—our secondary digestion being thus greatly interfered with. The lymphatic glands, under normal conditions, do most important work in connection with the absorption of fluids into and from the body; they play a part in connection with the transformation of the nutrient materials carried to the tissues, and, again, with the removal of effete matter from the body, and if they are destroyed or are put out of action by a tuberculous process the general nutrition of the patient cannot but be impaired, and to that extent the patient suffers not only locally but generally, and to that extent further tuberculous infection of human origin at a later date may have to contend with damaged and less well-nourished tissues.

Then, too, the enormous amount of disability and malformation due to bone disease, the result of infection by the bovine tubercle bacillus, cannot be ignored. The bovine type of tubercle bacillus may not set up a disease so directly fatal as that induced by the human type, but indirectly it accounts for grave disabilities, an enormous cutting down of working capacity, is a great drain on energy, and involves an incalculable waste of food.

We are, at present, engaged on a great anti-waste campaign. We have it on unimpeachable authority that "the eyes of a fool are in the ends of the earth." I am afraid that some of us—and I think we may all take a share of any blame in this matter—are prone to desire, at any cost and in all conditions, *to save*. Is not such saving very uneconomical if it is effected at the expense of efficient public

health and educational services? Unwise economy in these matters is surely prodigal waste. There are, of course, many now entering on this great anti-waste campaign who have had no thought for economy for the last three years, and each has his own pet scheme or plan, often very crude and badly thought out, for cutting down expense and preventing waste. Some, no doubt, are excellent, but one I hope will receive scant consideration and short shrift—any attempt to cut down or economise in money, thought or Parliamentary legislation in such matters as bear on health and education—the greatest assets of a practical people. (Applause.)

As members of this great International Union, we recognise that to preach economy on these lines is not to advocate anti-waste. The sick and the ignorant have a right to a fair share of the wealth placed at the disposal of the State—a very small sum comparatively, but with promise of a great return to the community, even in acceleration of our already rapidly falling case-rate and death-rate from tuberculosis.

Tuberculosis, unlike typhoid fever, plague or other infective processes that run a rapid course, cannot be cured, nor can preventive measures be devised, in days or weeks. It is a disease with a long latent period, the date and site of infection are enveloped in obscurity, the destruction of the tissues affected takes place slowly but surely, the process of healing goes on slowly, irregularly and imperfectly, and we may now rest assured that the processes involved in the arrest of the disease (lost tissue can never be made good) can work but slowly, and that only by placing the patient under the most favourable conditions can we aid these processes. Many of us look forward with great confidence to the future, but we also recognise that the prevention and cure of tuberculosis must be a work of time, money, patience and anxious thought. (Applause.)

Professor LÉON BERNARD (Paris)—

Il semble résulter de l'ensemble des travaux si lumineusement rassemblés par le Prof. Calmette dans son rapport que l'on aperçoit aujourd'hui une explication du contraste saisissant qu'offre la gravité des formes avérées et évolutives de la phtisie avec la latence complète en même temps que l'extrême diffusion des formes occultes de la tuberculose ne se manifestant que par les réactions tuberculiniques.

Cette explication peut être schématisée de la manière suivante.

Il convient de distinguer deux ordres de sources de contagion

tuberculeuse ; d'une part des sources intermittentes, accidentelles, fortuites ; elle sont représentées soit par ces semeurs de bacilles porteurs de lésions occultes dont a parlé M. Calmette, soit par des tuberculeux francs, ouverts mais au contact desquels des sujets sains ne se trouvent exposés que passagèrement ; d'autre part des sources permanentes, abondantes, constituées par des cracheurs de bacilles se trouvant en contact constant ou répété avec de mêmes sujets indemnes.

Les sources de la première catégorie ne donnent lieu qu'à des émissions de bacilles rares, pauvres ; elles sont pauci-bacillaires. Les sources de la seconde catégorie émettent de grandes quantités de bacilles ; elles sont riches, et prodigues de leurs germes.

Les contagions qui dérivent de ces sources sont entièrement différentes suivant la valeur de celles-ci ; la richesse du contagé est subordonnée au volume et, si l'on peut dire, au cours de la source. Et l'on doit distinguer entre des contaminations massives ou répétées d'une part, des contaminations pauvres ou accidentelles d'autre part.

Il paraît acquis que les manifestations du bacille dépendent, pour la plus grande part sinon entièrement, du nombre des unités bacillaires qui ont envahi l'organisme, et par conséquent du mode de contamination. Aux contaminations massives ou répétées répondent les formes avérées de la tuberculose ; aux contaminations pauvres ou accidentelles les formes occultes.

Ces faits sont d'une constatation impossible lorsque l'on en poursuit l'étude chez l'adulte. Ils sont au contraire faciles à saisir lorsqu'on les recherche chez le tout jeune enfant, parce que celui-ci, s'il est observé dès la naissance offre un terrain vierge encore de toute infection, et parce qu'il va vivre dans un milieu fermé et en quelque sorte rétréci, ne l'exposant qu'à des influences et des contacts peu nombreux définis et connus. Le nourrisson, à cet égard, présente un terrain d'étude pour ainsi dire expérimental.

Cette étude, je l'ai poursuivie avec mon collaborateur Robert Debré à la Crèche de l'Hôpital Laënnec, à Paris. Cette crèche reçoit des mères tuberculeuses avec leur nourrisson, dans un délai d'ailleurs très variable après l'accouchement. Le premier fait qui s'impose est que l'enfant naît sain, et qu'à ce premier âge de la vie la contagion est toujours familiale, et presque toujours maternelle. La tuberculose du père représente un danger beaucoup moins menaçant pour l'enfant que la tuberculose de la mère.

En pratiquant chez l'enfant des cuti-réactions en série, répétées tous les huit jours, on saisit le moment précis où l'infection tuber-

culeuse est réalisée. L'apparition des réactions allergiques marque le début réel de la maladie. La période qui précède l'apparition de la cuti-réaction est une véritable période d'incubation de la maladie ; c'est la période anté-allergique. Elle est absolument latente, ne se manifestant par aucun signe extérieur. Souvent cette latence persiste après l'apparition de la cuti-réaction ; mais dans un certain nombre de cas celle-ci coïncide exactement avec une ascension thermique, parfois quelques troubles digestifs et une baisse de poids, qui sont d'ailleurs passagers. Cependant il arrive, soit à ce moment, soit un peu plus tard, que l'infection tuberculeuse évolue et donne lieu à des manifestations cliniques, lesquelles sont ordinairement mortelles, mais peuvent cependant guérir, ainsi que je l'ai signalé avec R. Debré.

A cet égard je dois dire que les faits que j'ai observés sont entièrement discordants avec ceux qu'a relevés le Prof. Sims Woodhead : les lésions des ganglions mésentériques sont d'une extrême rareté à nos autopsies de nourrissons. Au contraire, c'est une règle qui ne souffre presque pas d'exceptions que nous rencontrons des lésions ganglio-pulmonaires qui sont toujours les mêmes ; un gros tubercule dans un lobe pulmonaire et un ganglion caséux dans le territoire correspondant. Parfois des foyers broncho-pneumoniques ou des lésions granuleuses sont surajoutées à cette expression anatomique de la primo-infection, qui est quasi-constante.

Mais je reviens aux conditions de la contagion. A la crèche de l'hôpital Laënnec, dès le diagnostic de la mère assuré, je sépare celle-ci de son enfant, supprimant tout contact entre eux. On peut donc ainsi aisément compter le temps de contact entre la mère et l'enfant. On peut mesurer le délai qui sépare le moment extrême de la contamination et le moment d'apparition de la cuti-réaction ; lorsque celle-ci ne se montre qu'après la séparation de la mère et de l'enfant. Or nous avons constaté avec une régularité assurément frappante que la durée de la période anté-allergique, qui est de deux mois en moyenne, est d'autant plus courte que les contacts entre la mère et l'enfant ont été plus étroits, plus intimes, plus constants. De même la gravité de l'infection de l'enfant est corrélative du mode de contact.

Dans les conditions d'observation où nous sommes placés, et qui sont comparables à celles d'un laboratoire, les constatations sont d'une netteté, d'une simplicité, et d'une constance qui ne souffrent pas d'objections. C'est au point que nous pouvons aujourd'hui, à propos de presque chaque cas, procéder à une véritable enquête étiologique, analogue à celle que l'on poursuivrait pour une fièvre

typhoïde ou tout autre maladie infectieuse, et qui permet de remonter à la source de la maladie, de reconnaître l'agent de la contagion, le moment où celle-ci s'est produite et la modalité qui y a présidé.

D'ailleurs ces faits cliniques, déjà évidents par eux-mêmes, ont pu être corroborés solidement par les recherches expérimentales poursuivies à mon laboratoire par M. Robert Debre et ses collaborateurs. Par des inoculations intra-cardiaques répétées de quantités déterminées de culture de bacilles chez le cobaye, ils ont pu reproduire les diverses conditions de la contagion inter-humaine ; ils ont reconnu la proportion rigoureuse qui existe entre la durée de la période anté-allergique (précisée par l'intra-dermo-réaction) et le volume du contage, au point de pouvoir déterminer à l'avance le début de l'infection.

Ces faits, si importants au point de vue scientifique, sont encore riches de conséquences pratiques. Nous avons en effet reconnu qu'en séparant l'enfant de sa mère, on peut, si l'on arrive à temps, le dérober à la contamination ; et si celle-ci est déjà consommée, interrompre la continuation de la contagion, et sauver l'enfant de la mort. Cette séparation, nous l'opérons aussitôt que possible, à l'hôpital. Ensuite, après un temps d'observation suffisant, nous plaçons l'enfant à la campagne. A cet effet, nous avons proposé d'appliquer aux nourrissons les principes si féconds de Grancher. Déjà l'an dernier, à la Conférence de Paris, nous avons indiqué les dispositifs spéciaux qui conviennent au placement familial des nourrissons. Je n'y reviendrai pas ; je veux seulement indiquer que les résultats ont été aussi satisfaisants que possible.

Je préfère aujourd'hui montrer l'influence que les notions nouvelles doivent exercer sur notre conception de la prophylaxie. Il demeure entendu, ainsi que le proclamait M. Calmette, que le premier objectif de la prophylaxie doit être d'élever des barrières autour des causes permanentes et abondantes de contagion ; le cracheur de bacilles reste le grand danger, et nous devons maintenir toutes les précautions destinées à nous défendre contre les risques de contagion qu'il répand.

Mais dans quelle mesure devons-nous nous préoccuper des semeurs intermittants de bacilles, des sources pauvres et accidentelles, paucibacillaires ? Je pense qu'elles sont inévitables et d'ailleurs qu'il n'y a pas lieu de les éviter. Elles sont inévitables, puisque 97 pour 100 des adultes sains sont susceptibles d'émettre de temps en temps des bacilles. Elles ne sont pas à éviter, parce que c'est de ces émissions de rencontre que nous tirons les bacilles peu nombreux qui servent à nous immuniser progressivement. L'idéal, évidemment, serait un

procédé de vaccination artificielle, provoquée, contre la tuberculose. Celui-ci n'est pas encore découvert. En attendant, nous ne pouvons que bénéficier de la vaccination en quelque sorte naturelle, spontanée, qui résulte des contaminations pauci-bacillaires. Si nous pouvions graduer, mesurer celles-ci, ce serait là un progrès d'une grande portée. Dans l'incapacité où nous sommes d'une pareille pratique, nous ne pouvons qu'accepter l'inévitable, avec d'autant plus de facilité d'ailleurs qu'il nous protège vis-à-vis des contaminations riches éventuelles, lesquelles seraient infiniment plus dangereuses si nous ne pouvions pas leur offrir un terrain de résistance préparé par des contaminations pauvres antérieures. Toutefois, je pense avec M. Calmette que le tout jeune enfant doit être autant que possible mis à l'abri de toute contamination, parce que son organisme aussi frêle qu'indemne est plus aisément la proie d'une contamination, dont, je viens de le dire, nous n'avons pas le moyen de graduer la richesse.

Pour finir je voudrais m'associer aux paroles si éloquentes qu'a prononcées le Prof. Sims Woodhead. Elles m'ont d'ailleurs surpris dans la bouche d'un Anglais. Nous autres, Français, nous nous représentons la Grande-Bretagne comme la Nation modèle, où le souci de la santé publique est au premier rang des préoccupations des Pouvoirs publics. Chez nous, il importe de faire appel à toute leur vigilance ; l'Académie de Médecine, à Paris, n'a pas manqué de la faire récemment, à la suite d'un rapport que je lui ai présenté. Puisque je crois discerner dans cette Assemblée que dans tous les pays à l'heure présente, les médecins et les hygiénistes ont les mêmes alarmes, je pense qu'il conviendrait de les traduire dans un vœu, qui serait adressé par la Conférence à tous les Gouvernements des Etats qui y sont représentés. (Applause.)

Sir ROBERT PHILIP : It would be an insult to Prof. Bernard's eloquent and luminous French to have his speech translated into English, especially as time is passing quickly. I should like to indicate, in reference to what he has said, that we are now in a position to consider resolutions. Prof. Bernard has proposed—not in exact form—he has rather suggested that we should include as one of our resolutions a plea to be submitted to all the Governments of the countries here represented, in favour of more adequate financial supplies in the interest of public health, and, as we believe, ultimately in the interest of public economy. (Applause.)

The exact form of the resolution will be presented to the delegates at the last meeting of the Council.

Dr. GERALD WEBB (U.S.A.): Sir Robert Philip, Ladies and Gentlemen,—Prof. Calmette has so well covered the whole ground this morning, and the subsequent speakers—Sir German Sims Woodhead and Prof. Bernard—have also covered a great many of the points to which I should have spoken, that I will be very brief and just endeavour to put the practical point of tuberculosis being a family disease.

We have dismissed practically the possibility that consumption is inherited, but in doing so we have not laid enough stress on the fact that tuberculosis is a family matter. Dr. Bernard has well said that it is the repeated massive infections of bacilli which bring us the consumptives. Where can we better obtain evidence of that than we do in the family of consumptive parents, especially the mother?

As already emphasised, we have collected the household records of intelligent patients in the last few years, and have found that 50 per cent. of the consumptives who come to us have had family exposure, so that a large number have had that intimate contact which is necessary to spread the infection.

Prof. Calmette has spoken to you of the two types of carriers—the close type of carrier and the open type of carrier—but we are not so apt to get from the close type of carrier the massive repeated infections which are necessary, apparently, to bring about this disease. Therefore, as my friend Prof. Calmette said, we must be very careful how we increase the present phthisiphobia in emphasising the great danger of the close carrier.

I would like here to give credit to the immortal Pasteur for two aspects of the work that we have heard referred to to-day and yesterday. We all know the Pasteur idea of taking away the eggs of the silkworm and putting them on healthy leaves in order to develop healthy silkworms. Now, this question of carriers in tuberculosis and in other diseases was correctly anticipated by Pasteur in his experiments in connection with chicken cholera. He produced abscesses under the skin of guinea-pigs, and then turned the guinea-pigs loose in the pens with chickens, among whom they disseminated the disease. The chickens died of the disease, whereas the guinea-pigs remained healthy. It is against those types of carriers where you have more than the possibility of massive contagion that it seems to me we have to be especially on our guard. We must prevent this disease in the families that come under our observation, because in so many cases, before a parent becomes a manifest consumptive, he has been a carrier of the disease, and has been able to

disseminate millions of these bacilli in his immediate neighbourhood. (Applause.)

Prof. HARBITZ (Norway): Mr. President, Ladies and Gentlemen,—As to Norway, race differences do not assert themselves very much. The predominant part of the population is Norwegian, a true Teutonic race. In Finmark only, the most northerly district of the country, there are two intermingled races besides the Norwegians, viz. the aboriginal Lapps and the Quains, immigrated from Finland.

The Lapps are small of stature, plain looking and little developed; many of them are nomads. They are poor, not very cleanly, and live in miserable dwellings, either in huts or tents and under bad hygienic circumstances.

The Quains or Finlanders are of the Ugrian race, which now forms the majority of the population in Finland. They are robust, physically well-developed and strong people with a certain culture. In their own country they probably lived under very poor and difficult conditions, yet observing certain hygienic rules, especially in relation to baths.

It is a fact that tuberculosis has increased very much just in the most northern parts of Norway, and especially in Finmark the disease is more frequent than in any other part of the country. Thus the mortality, which in 1871 was 2·2 *per mille*, rose to 4 *per mille* in 1901. As to the frequency of the tuberculosis among the different races in the two periods, viz. from 1886 to 1899 and from 1899 to 1911, the mortality among the Norwegians in Syd-Varanger, a district with a very much intermingled population, sank from 3·4 to 3 *per mille*, while the mortality among the Lapps rose from 3 *per mille* to 5 *per mille* during the same period, and among the Quains it rose from 1·2 *per mille* to 4·27 *per mille*. At Kistrand, the neighbouring district, the same conditions prevailed.

According to the physicians of the district, who are men of great experience, this fact is not, however, the result of race differences; it rather shows the different hygienic and economic circumstances under which people live.

None the less, it seems probable that the explanation of the greater prevalence of tuberculosis among the Lapps—besides their bad, even miserable economic circumstances as to housing as well as to food—must be the fact that the Lapps physically as well as psychologically are of an inferior race. They may thus be supposed to be liable to tuberculosis. The same experience is recorded in other

countries, where an inferior race of aborigines is specially ravaged by tuberculosis, and superseded by new immigrants to such a degree that it is threatened with extinction. (Applause.)

Col. HUTCHINSON (India): Mr. Chairman, Ladies and Gentlemen,—Tuberculosis in India is very widely prevalent. To give some idea of its prevalence, I will take one of the divisions of India with a population of 20 millions, and the jail population, which in itself is more or less a reflection of the incidence of the disease amongst the town population. Over this area of India, containing over 20 million population, the death-rate from all forms of tuberculosis is 89 per 100,000 of population; for those living in rural areas the death-rate is 63; for those living in town areas, urban areas, it is 223. In certain towns the death-rate reaches as high a figure as over 700 per 100,000 population. Amongst the jail population the admission rate per 100,000 population is just over 1200, the death-rate 373.

As regards the type of the disease, taking the figures for a few towns, we find that about 84 per cent. of the deaths are due to the pulmonary forms of tuberculosis, and about 16 per cent. to other forms.

I wish to be very guarded in what I say now. The investigation into the modes of diffusion of infection is still in its infancy. It has not proceeded far enough to make more than very general statements, but it appears so far that gross tuberculous lesions in cattle are very rare. Taking the experience of the slaughter-houses, I can only recollect one case of advanced bovine tuberculosis. There is no selection of the cattle for slaughter; if there is any selection at all, it is a selection of those that are unfit to live.

Another point is this: In those cases of surgical tuberculosis that have been examined in the bacteriological laboratories, the type of bacillus isolated has been the human type. So, at present, our problem in India seems to be mainly directed towards the human case.

I was very glad to hear the remarks of Dr. Gerald Webb on the family factor. In India the family factor is of paramount importance. The type of building for the ordinary great majority of the poor is a one-room tenement. That room, though perhaps fairly well ventilated, is absolutely dark; it is necessary to go into the room, even at mid-day, with artificial light. The whole family live in the room, and expectoration is universal: everybody spits; they spit copiously.

The two points which are of great importance in India as regards the dissemination of infection are, first, the flow of the rural population from their agricultural work to the towns for industries. That is of fairly recent origin. Now these people do not make their permanent home in the towns: their permanent home is in their villages. They either contract or develop tuberculosis in the towns. When they are in an advanced stage and about to die, they wish to return to their villages. There is abundant evidence now of these cases returning to their homes and setting up foci of infection amongst their families; in fact, in those rural areas which supply the industrial population of the cities, tuberculosis is spreading very rapidly.

There is another factor in the family infection which exists particularly in certain towns in India where the Mohammedan population is greatest, and where the Purdah system prevails under which the women of the household are shut up in the house almost completely. Now in those towns the death-rate from pulmonary tuberculosis amongst women is very far in excess of that amongst men. With the mother infected with tubercle, the risk of infection of the child is obvious. I only wish to emphasise the point, so far as investigation has gone, that the human case is our important factor in the spread of infection. (Applause.)

Colonel GEORGE E. BUSHNELL (U.S.A.): Mr. Chairman, Ladies and Gentlemen,—In attempting to solve the practical problems of the prophylaxis of tuberculosis, it is of the utmost importance that we have an approximately correct idea as to the degree of tuberculation of the community. The percentage of reactions to tuberculin, as is well known, varies much more in a population semi-civilised or barbarous, or, at least, remote from the centres of civilisation, than it does in the populous communities of Europe and North America.

Our distinguished colleague, Prof. Calmette, has rendered the world a great service in causing to be instituted in the French colonies a series of tests of the population by means of the cutaneous reaction to tuberculin. As he points out, such tests have also been made in some of what were formerly the German possessions, beyond the sea. Epidemiological investigations of this kind are essential for a correct understanding of the status of a community as respects tuberculous infection.

But there is another way in which tuberculin may be profitably employed, to which I would invite your attention. I refer to the use

of the cutaneous tuberculin test for the purpose of detecting the members of the community who have recently become infected with tuberculosis, and who, therefore, may be in especial need of medical attention. The children are the class in our community most likely to be the subjects of a primary tuberculous infection. Supposing that a certain number of children, 100, 500 or more, three to ten years of age, are tested with tuberculin in this manner. A certain percentage, probably the majority of these children, will give a positive reaction.

So far the test has been of an epidemiological nature. It only shows which of the children are already infected without giving information as to the time when that infection occurred. But let a careful record be made of the negative cases and test them again after six months or a year. If certain of them are now positive to the test, it is then known that these children have become infected within the period which has elapsed since the first examination. Attention may then be concentrated upon them; their physical condition may be inquired into, faults of hygiene corrected, better food may be given, the parents may be instructed in their care, or if their condition demands, the children may be removed to a hospital or to a country home.

It is my belief that attention of this sort would be very richly rewarded by a diminution in the incidence of manifest tuberculosis of the lungs during adolescence or in adult life. There would be the great advantage that the class of cases most likely to receive real benefit from medical care and from the administrations of the charitable would be automatically selected by this method—their discovery would not be left to the chance visits of the district nurse or to the physician who examines "contacts." In fact, neither physician nor nurse would be likely to discover cases of this kind without the aid of the tuberculin test, the manifestations of the new infection being extremely obscure. Too often the cases which visit the dispensary or are admitted to the hospital are far advanced. The pædiatrist will testify that when visceral tuberculosis has progressed so that the child is recognised by its parents to be ill, the case generally terminates fatally.

The tuberculin skin test is low in cost and may be given by the intelligent layman after a little instruction. The records necessary could be kept by volunteers among the charitable. All that is needed further is medical oversight and a continuous policy.

It should be pointed out that in order to approximate as closely as possible to the real facts of tuberculous infection, the tuberculin

should be used undiluted, in the cutaneous test, and the test should be repeated in negative cases after one week. Ritter found that where 94 per cent. of tuberculous patients in a given series reacted to undiluted tuberculin, only 76 per cent. of the same persons reacted positively in the cutaneous tests to 25 per cent. tuberculin. With greater dilutions the percentage of positive reactions diminishes progressively as the tuberculin used is more and more diluted. (Applause.)

The Conference adjourned until 3 p.m.

AFTERNOON SESSION.

On resuming at 3 p.m.:

Sir GEORGE McCRAE, D.S.O. (Scottish Board of Health): Mr. President, Ladies and Gentlemen,—In these troublous but interesting times there appears to be an epidemic of national self-determination. Well, Scotland is quite content to work in double harness with the sister-country of England, but I only make one qualification, and it is this: That we should like from the Imperial Parliament perhaps a little more latitude and a little more delegation of administration, so far as public health is concerned.

In Scotland we consider ourselves really a pioneer nation so far as tuberculosis is concerned. That, of course, is only another way of saying that under the wise guidance of our Director-General, Sir Robert Philip, we have been able to achieve some little measure of success. We have come through a long period of—shall I say—troublous times in fighting this fell disease.

I remember the early days when Sir Robert Philip was not quite so well known as he is to-day. I was at that time a mere stripling, but I was connected with municipal administration, as being Finance Minister of the Corporation of Edinburgh. I represented a working-class ward, and I was brought in contact with a great many working men, and there was one man that interested me very much. He was a mason, suffering from masons' phthisis, and he told me that he was getting treatment from a doctor in a room up a staircase in one of our City streets, and this doctor was named Dr. Philip.

I happened to mention this—I have never told Sir Robert Philip this before, and it is a good many years ago—I was telling

this to a medical man of some eminence in Edinburgh as to the work that I thought, as a mere layman, was being done. That medical man scoffed at the idea of this treatment being a success. He did not say that Sir Robert was a quack doctor, but he did indicate that he was employing quack remedies. (Laughter.) I was very much interested. Some years after, when I was put at the head of public health administration in Scotland, again I came in contact with Sir Robert Philip, and I have been in personal contact with his administration ever since.

First of all, we had the Victoria Dispensary founded by him in 1887, and then the Victoria Hospital or Sanatorium. Then, afterwards, he developed the Farm Colony idea. Since then the treatment of tuberculosis in Scotland has gone on by leaps and bounds. I know that in those days Sir Robert Philip had a great many difficulties to contend with, but with that dogged determination so characteristic of his race, he not only won through, but is the undisputed and recognised leading authority on tuberculosis in the world to-day. (Applause.)

Now, we have had yesterday some statistics from the Minister of Health in England dealing with tuberculosis, and I hope you will not think me egotistical for my country if I say that we consider ourselves far ahead of England in this matter. So far back as 1906, the Local Government Board of Scotland—it was before my time, so that I can speak with the greater freedom—issued a circular to local authorities asking them to adopt compulsory notification of pulmonary disease, and so well did the local authorities in Scotland respond to that, that when the Insurance Act was passed in 1911, 60 per cent. of the local authorities in Scotland had adopted notification of pulmonary disease, so that when the passing of the Insurance Act came along the ground was well prepared, and when, in 1912, we issued an order for the compulsory notification of pulmonary consumption, there was very little to be done in Scotland. Then, in 1914, we issued a further order, making all forms of tuberculosis notifiable in Scotland.

I am not going to weary you with figures, but there are one or two which, I think, will be interesting, and which I hope you will forgive me for quoting.

The institutional accommodation for pulmonary disease in Scotland at the time of the passing of the Insurance Act in 1911 was as follows: Local authority beds, 480; voluntary institution beds, 550; total 1030, representing one bed for every 4622 of the population.

Well, the position to-day is this: We have 101 sanatoria, hospital and other accommodation. There are 3232 beds actually in use for the treatment of pulmonary disease. That gives a percentage of one bed for every 1500 of the population, as against 4600 in 1912. (Applause.) That, I think, is a very remarkable advance that we have made. In addition to that, there are a large number of beds for the treatment of non-pulmonary disease.

Well, in 1911 we got our share of the £1,500,000 given as a capital grant for the erection of sanatoria, referred to by Sir Alfred Mond yesterday, and, as you know, a grant of 50 per cent. of the approved expenditure on tuberculosis is paid by the Imperial Exchequer to the local authorities, and in 1915 that grant amounted for Scotland to £51,500. But in 1920 the local authorities got a grant which was half of their approved expenditure of £160,500, which also shows the advance that has been made.

Now the last figure I will give you is with regard to the number of deaths per 100,000. In 1910 the population of Scotland was 4,737,000. The number of deaths from pulmonary disease was 5409, giving a rate of 115. In 1919 the number of deaths had fallen to 4294, and the rate had fallen from 115 to 88, and for 1920 there has been a further fall, namely, the deaths 4194 and the rate 86.

One very interesting figure is the comparison between the deaths of males and females. I do not know if we can entirely explain how the difference comes about, but in 1910 the rate of mortality of males was 122. That had fallen to 89 in 1919, and there was a slight rise to 91 in 1920. The female death-rate, on the other hand, was 109 in 1910, 87 in 1919, and 81 in 1920. The deaths from all forms of tuberculosis were in 1910, 8517, and in 1919, 6326, or a fall of 25 per cent. The rates for all forms of tuberculosis were as follows: 1910, 181; 1919, 130; 1920, 124; and if we take the same comparison as between male and female we find that in 1910 the male rate was 192, it had fallen to 132 in 1920, and the female was 171, and had fallen to 116 in 1920.

I am not going to rush in where angels fear to tread and give any expression of opinion as to the value of sanatorium treatment. All I can say is this, that from my own personal knowledge the results that we have had in Scotland from sanatoria and from the working colony system have been excellent. The working colony system has been developed very largely in Lanarkshire; we have in mid-Lanarkshire one of the most enterprising county councils in the Kingdom of Scotland, and there they have an institution, Hairmyres, where they have not only hospital and other accommodation, but

they have developed the system of training by craft, and especially by labour on the land. Indeed, they have started a forestry department; they have a belt of land away from Hairmyres Institution, where they have a young forest growing up, so that the inmates of Hairmyres may be trained in forestry work.

My last word, Sir Robert, is this. We in Scotland at the present time are busily engaged in combating what we believe is the root of a great deal of tuberculous disease, and what is indeed the most formidable ally which the white scourge has got, and that is the question of houses. (Hear, hear.) In Scotland I am ashamed to say that the housing conditions are deplorable. In 1912 I made a tour over the whole of Scotland, and I was sick at heart at many things that I saw. Even before the war we were grappling to some extent with the question of the slums. Of course the war set everything back, but now, Sir Robert, we are doing our very best to make a strenuous fight to improve our housing conditions, and, if we are able to do that, we feel we shall be doing something more towards the elimination of tuberculous disease. (Applause.)

Col. LYLE CUMMINS (Great Britain): Sir Robert Philip, Ladies and Gentlemen,—In opening my remarks I desire to remind this audience of the debt that students of tuberculosis owe to France and to her scientific workers. We have heard to-day from the lips of Prof. Calmette one of the most interesting and far-reaching expressions of opinion that I have ever listened to on this subject, and we have among us Léon Bernard, Rist, Armand Delille, Bezançon and others who have made most notable contributions to the study of this disease. It appears to me that these workers still carry on with great success the traditions of Laennec and Villemin, whose researches threw the first strong light upon the real nature of tuberculosis.

After Calmette's speech it is interesting to remember that Villemin as long ago as 1868 laid stress on the acute infectious nature of tuberculosis as manifested amongst Africans and other peoples isolated from civilisation. In England, at the same time, William Budd, of Clifton, drew the same conclusion from the same facts. They both regarded tuberculosis as an acute infectious disease comparable to the zymotic diseases, and they based their opinion upon its behaviour amongst primitive peoples.

With the experience that we have before us to-day are we likely to agree that they were right? If we look at the matter purely from the point of view of tuberculosis in a civilised community such

as we live in, we see little trace of acute infective processes amongst the adult population. While nearly everyone is to some extent infected, a large proportion never show clinical signs of the disease, and it appears that doctors and nurses closely associated with advanced cases very seldom contract tuberculosis. Are we, then, to conclude that Villemin and Budd were wrong? By no means. They founded their opinion upon the behaviour of the disease in virgin soil, and their observation is fully confirmed to-day.

Nowhere has this apparent paradox been better illustrated than during the late war, when we had an opportunity of comparing the reaction to tuberculosis in native labour battalions and coloured troops on the one hand, and British and French troops on the other. This aspect of the problem has been well described by Borrel, who studied the disease as it affected the Senegalese troops in France. His experience was entirely corroborated in the armies of the British Empire. The contrast was as follows: The African or the Oriental exposed to infection almost invariably contracted the disease in an acute form, and died after a short illness. In these people it was undoubtedly an acute infectious disease.

The British soldier, on the other hand, showed considerable resistance to infection. Although exposed to far greater privations than the native labour corps, our soldiers had a very low incidence of tuberculosis, and the death-rate was minimal. Here the disease showed itself rather as "an environmental disease." The privations of war lowered the men's resistance, and allowed chronic latent tuberculosis or a relatively "balanced" infection to develop. It was not until long afterwards that clinical signs of a definite character came to light. Thus it came about that while in the African the disease was acute and infectious, in the European it usually took quite a different course. Infective it may have been, but its progress was seldom acute.

At this point it is worth recalling that we now see the aftermath of tuberculosis as it affected the British soldier. The coloured men died rapidly; the European, though definitely influenced by privation and by infection from outside or from within, went on with his work, or perhaps was invalided later under some such diagnosis as chronic malaria or chronic bronchitis, and it was not until long afterwards that the true nature of his disease became apparent. This long latency of tuberculosis in the civilised person has been a factor of great difficulty and often a source of great hardship to the tuberculous ex-service man. Many of them have been invalided on incorrect diagnosis, and many people present will recall instances

where an error of this kind has stood between the tuberculous patient and his rights. I would add that the Ministry of Pensions, and especially the Director-General of its Medical Service, are fully cognisant of these difficulties and very anxious to redress them, but the nature of the disease in resistant soil is such that mistakes are almost impossible to avoid.

One final word as to the lessons to be drawn from the facts which I have put before you. Prophylactic measures against tuberculosis should be made to meet the actual needs of the situation. Where we have to deal with primitive peoples brought for the first time into contact with civilised communities, we must remember that our measures should be those appropriate to an acute infectious disease. Protection from the bacillus is the first need, and individuals proved to be negative to the von Pirquet reaction should be regarded as highly susceptible, and should not be included in drafts for units destined to serve with Europeans. In the case of civilised communities where we are dealing with adults, we should always bear in mind the fundamental importance of good environmental conditions, good food, good housing, adequate air space and satisfactory conditions of work. For children, however, new arrivals in an infected community, the disease will still be an acutely infectious malady, and the measures necessary to prevent it will be measures designed to avoid massive doses of the tubercle bacillus. (Applause.)

Dr. LANDIS (U.S.A.): Mr. Chairman, Ladies and Gentlemen,—This discussion has progressed sufficiently far to show how intricate the ætiology of tuberculosis is and how little we actually know.

Acknowledging that the tubercle bacillus is the cause of the disease and that the implantation of this organism in the human body is well-nigh universal, we are at a loss to explain why the disease manifests itself clinically in one individual and not in another.

There are two points on which I should like to touch. In both instances the view is counter to that generally accepted.

(1) The time of infection. It is quite generally accepted that the implantation of the bacillus occurs, as a rule, in the first year or so of life, and that, no matter how many years later the disease appears, it is to be ascribed to that original infection.

My colleague, Dr. Paul A. Lewis, of the Phipps Institute, has advanced the following hypothesis: It is granted that the primary infection does occur in the first year or so. This terminates in one of two ways, however. Either it proves fatal, usually in the

form of tuberculous meningitis, tuberculous broncho-pneumonia, abdominal tuberculosis, etc., or the child entirely recovers from the infection.

That the disease is fatal in the first two or three years is attested by the high mortality curve at these ages. Following this and extending to adolescence, there is relatively little tuberculosis in children. At this later period the disease again becomes prevalent, and this is to be ascribed to reinfection, the primary infection having been cured and the bacilli killed.

One can adduce the following facts in support of this: (a) It is known that cattle can be immunised with non-virulent, living bacilli, and that so long as they harbour living organisms they will resist infection with virulent bacilli. When, however, the now virulent organisms die out, the cattle are readily re-infected. (b) Again, Cobbett, in his work with the Royal Commission, encountered caseous lymph-nodes in children dying from causes other than tuberculosis. In several of these cases the pus contained organisms which, from their staining and microscopic appearance, indicated that they were tubercle bacilli. And yet this caseous material, when injected into guinea-pigs, did not produce the disease. This would seem to indicate that in these cases the infection had been cured.

(2) The second point on which I wish to speak is that of heredity, some mention of which has been made. It is well known that tuberculosis is rarely directly inherited, not more than thirty authentic cases of this nature being reported. For some years we have been inclined to discount the effect of heredity entirely, although Karl Pearson, for years, has insisted on the existence of an hereditary predisposition or diathesis.

For the past ten or twelve years the Department of Animal Industry in Washington has been conducting breeding experiments with guinea-pigs in order to determine certain hereditary factors. During these years they have developed some seven or eight distinct families, and these families, absolutely free from any outside blood, have certain definite characteristics. My colleague, Dr. Paul A. Lewis, has been fortunate enough to obtain these animals for the past two years. From the beginning he was able to show that the injection of tubercle bacilli into these animals under uniform conditions gave rise to different results. Several of the families were strongly resistant, while others were extremely susceptible to the infection, and their resistance or susceptibility could be increased or diminished by cross-breeding or the introduction of outside blood. All of us have knowledge of sufficient family histories in humans

to substantiate this experimental work. Thus there are families which for generations have never had a case of T.B., although living under exactly the same conditions as others which develop it quite readily.

Both of these questions, namely, adult infection and hereditary predisposition, are, I feel, worthy of our attention. (Applause.)

Dr. HAYDON (South Africa): Mr. Chairman, Ladies and Gentlemen,—With the concurrence of my colleague and co-delegate for South Africa, Dr. Jasper Anderson, of Cape Town, I propose merely to touch on one or two points connected with the diffusion of tuberculosis in South Africa, and to bring to the notice of those unacquainted with South African conditions, the intimate relation which obtains between the existence of the disease in the larger civilised communities and in the rural native communities far remote from those civilised communities.

In our larger centres of population, where conditions of life are now beginning to approximate those existent in the older centres of population, there is little reason to suppose that the modes of diffusion of the disease are not essentially the same, and so I do not propose to further comment on this subject; but, among the natives living in primeval rural conditions, it has been possible to observe during the last twenty years striking instances of how the disease has gained a footing and shown a fairly rapid spread.

The evidence laboriously collected by the South African Tuberculosis Commission and published in 1914, together with the careful observations of health officials, fully bear out the views expressed by Prof. Calmette and other well-known scientists, as to the non-existence of the disease among races who have not come into close contact with the older civilised communities.

The development of our South African industries, however, required that native labour should be recruited from far and wide, even from remote localities set aside for strictly native tenure, and to-day there is probably no considerable native village in South Africa that does not furnish its quota of labourers for work in the civilised centres of population—either as domestic servants, factory hands, or mine labourers.

The usual custom is for the native to leave his home—that is to say, his kraal—where he has a personal or communal interest in land, crops or cattle, in order to resort to the towns, where he takes work for periods varying from six months to two years, in order to earn money to buy more cattle or more wives. There is, therefore,

a very direct and natural incentive for the rural or kraal native to seek contact with the towns.

The rural or kraal natives still include the bulk of the native population, and live under conditions totally different from that smaller proportion who have abandoned kraal life, and have settled permanently in and around the larger towns. The former class live in grass huts in small villages, widely separated, chiefly in areas set aside by Government for strictly native tenure, and they are occupied in cultivation and cattle-breeding—often on a communal basis. The latter class are housed and live under more urban conditions, and have generally lost touch with kraal life.

The evidence that is available practically proves that considerable tuberculous infection has appeared among rural natives, and that it has originated from natives resorting for work in the larger centres, and then returning to kraal life.

I and my colleagues have frequently obtained definite evidence of tuberculous infection of the lung originating in this way among the inhabitants of remote native communities which had been hitherto absolutely free from tuberculous disease. Direct transference of infection by expectoration I should consider to be the almost universal method of diffusion in respect of native communities in the more remote localities.

The chances of the transference of infection by tuberculous milk in remote native communities are, from available evidence and observation, considered to be small.

The transference of lung infection from the original town-infected case to the lungs of other members of the kraal has been in many instances rapid, and I have observed instances where a whole family of seven persons have within two years acquired lung infection in this way.

It should be noted that although the sanitary conditions and general cleanliness of native kraals are fairly satisfactory in respect of the disposal of human excreta, the same cannot be said as regards expectoration, and it is to this that I attribute the spread of infection.

It has been frequently observed that tuberculous lung infection of natives runs concurrently with the habit of smoking and inhaling the vapour of Indian hemp; but as to whether the habit conduces to lung infection, or whether a native takes to hemp smoking to relieve his lung symptoms, no accurate observations have been made. I am personally inclined to think that Indian hemp smoking conduces to tuberculous infection of the lung.

The spread of infection in the strictly native communities reacts on the town populations, both native and European, when infected natives come back to seek work.

I regret if I seem to have laboured the point of the mode of diffusion of the disease among South African natives living under their original rural conditions, but the point has an important bearing on the consideration of practical remedial measures. The housing of such natives in their scattered grass huts may be considered to be healthy as regards the dissemination of a number of other diseases, but as regards the spread of diseases carried by expectoration, one is bound to admit that kraal conditions are faulty.

We have upwards of five million natives living under such conditions, and the great bulk of these have only been weaned from savagery and the grossest ignorance within the last thirty years. Their habits and customs cannot be changed in a generation, and the complicated machinery of civilised communities in respect of local effort—local raising of funds and the setting up of local authorities—cannot suddenly be applied to such people.

A commencement has, however, been made even in these directions, and powers exist under the Public Health Act which came into operation in 1920 for setting up machinery for remedial measures. A great deal is being done by the large employers of labour, such as gold mine companies, sugar companies and the like, in providing under Government supervision healthier housing conditions for natives recruited from the wilds, and a system is in vogue in some of the provinces whereby medical examination of natives registering to work for Europeans is carried out. Unfortunately, so far, no machinery exists for examining natives before they return to kraal life, which, in my opinion, is a more important matter.

The question of dealing with this disease, or even of discovering early cases among a people mostly ignorant and scattered over vast and often inaccessible areas, presents, I think, a very different and perhaps a more difficult problem than exists in civilised communities, where the co-operation of even the most ignorant is assured in advance.

Where, however, there is a will there is, in time, a way, and I am confident the white people and Government of South Africa have the will, and are anxiously watching the results of investigations, researches and administrative experiments, so that the best practicable remedial measure may be adopted. (Applause.)

Dr. HALLIDAY SUTHERLAND (Great Britain) : Mr. President, Ladies and Gentlemen,—I have the honour of attending this Conference as a representative of the Ministry of Pensions, and, as you, Sir, are well aware, the Minister of Pensions takes a very live interest in everything pertaining to the welfare of the tuberculous pensioner. In view of Prof. Lyle Cummins' remarks, I should not like, and I am sure Dr. Cummins would not like either, that there should be any misapprehension left this afternoon as to the policy of the Ministry of Pensions.

If a man is discharged with a disease—call it pleurisy, bronchial pneumonia or any other name—and if it is afterwards proved that the diagnosis was wrong, that the man really had tuberculosis, the disease is given “attributable to service.” Moreover, if the man is discharged with no disability at all, and later on—and so far no time-limit is specified—he develops tuberculosis, and we find from his documents that during his service he suffered from symptoms such as pleurisy, lung or bronchial pneumonia, we put that down as the first symptom of tuberculosis, and the disease is given as “attributable to service.”

Now, I say a more generous policy it is impossible to imagine. It is very easy to throw stones at a government department, but remember this, that while we are there to do, not charity, but justice to the discharged man, we are also there to protect the State from claims which cannot be substantiated.

This afternoon, as I am here to discuss the views advanced by Col. Bushnell and Prof. Calmette, I would like to make it clear that anything I say represents no one's opinions but my own, and certainly does not commit the Ministry which I have the honour to represent. I consider the opinions advanced this morning should be very carefully considered, and for this reason :

When we set out to achieve a definite purpose, our methods of procedure are of necessity determined by those principles which we hold in common. Believing that tuberculosis is an infectious disease, we advise the prevention of infection; and believing that natural resistance may overcome infection when once established, we advocate adequate treatment of early cases. As new light on the ætiology of tuberculosis might make it desirable to scrap all our existing machinery, we ought to be at some pains to consider whether any new doctrine is true or is false.

Col. Bushnell of the United States Army has recently advanced a new theory to explain the epidemiology of tuberculosis. He draws attention to the well-known fact that when tuberculosis arises among

a primitive people newly entered into civilised life, the disease becomes a rapid and fatal epidemic, whereas in an old-established civilisation, tuberculosis is for the most part a chronic, long-continued and often benign disease. These are facts which no one disputes, but it is well to distinguish between these facts and any suggestions which may be put forward to explain them. Col. Bushnell suggests that the comparative immunity in an old civilisation is due to small doses of infection which act as a prophylactic by raising the resistance of the race during childhood.

That is a possible explanation, but remember that the possibility or even the probability of any suggestion is not proof that it is true—a point often overlooked in scientific discussions. If the above suggestions were true, then, as Col. Bushnell says, it would be positively injurious to eliminate the sources of infection in civilised countries, and our right course would be to substitute “an artificial premeditated infection for the present infection by chance.” As these suggestions imply that we have been working on wrong lines, and should scrap our present methods, it is only right that we should examine the evidence on which they are based with particular care.

In the first place it is necessary to distinguish between a theory and a hypothesis or a suggestion. A theory is a conception of the mind which not only explains certain facts, but constitutes the only reasonable explanation of those facts: For example, the law of gravitation is a theory. A hypothesis is one explanation out of several alternative explanations, any one of which we are at liberty to accept or to reject as we please. Bearing that in mind, let us inquire whether infection is the predominating factor in the incidence of tuberculosis. By animal experiments it has been shown time and again that, given equal amounts of infection, an animal living under good conditions is less likely to develop the disease than an animal living under bad conditions. Therefore in animals infection alone is not the predominating factor. Again, in England and Wales, an old civilisation in which the chances of infection during childhood are almost omnipresent, we find that the incidence of tuberculosis amongst shoemakers is nearly three times greater than it is amongst coalminers. Does any man suggest that the tubercle bacilli, for the purposes of infection during childhood, distinguishes between children who are going to be coalminers and those who are going to be shoemakers? Infection during childhood is therefore neither the determining factor in the incidence of the disease nor the only reasonable explanation of the facts, and consequently cannot be accepted

as a theory of epidemiology. Nevertheless it is an interesting suggestion, and we must consider whether it offers even a partial explanation of the facts.

When a primitive race are living under conditions of Nature, they are free of tubercle. Whatever else befalls the naked savage he does not die of tuberculosis. It follows that one of two conditions must exist—a high degree of natural resistance to infection or an absence of infection. By analogy it is probable that both conditions exist. When a wild animal is placed under conditions of captivity the vitality of the animal, apart from any question of infection, is apt to be lowered. The wild horse has a normal life of fifty years, but the domesticated horse seldom attains the age of thirty. It should be noted that this is quite apart from tuberculous infection, to which the domestic horse, by reason of his open-air life and comparatively large stable, is seldom subjected. Of course there are exceptions, and it would appear that the last Derby winner, *Humorist*, died of tuberculosis. I don't know how many people here received any financial benefit from this horse during his lifetime, but we were told that he died of hæmorrhage, and we know that tubercle is the most frequent cause of hæmorrhage from the lung. Racehorses are highly delicate inbred animals, and in many racing stables the arrangements to keep out cold lead to deficient ventilation, which partly explains the increased liability of these animals to tuberculosis. On these grounds I suggest that when mankind is placed under conditions of civilisation—that is, of relative captivity—their resistance is lowered. Secondly, they are exposed to tuberculous infection, and these two factors are in themselves sufficient to explain the ravages of the disease amongst a newly civilised people. Under these conditions small doses of infection during childhood, so far from giving a partial immunity, would, and in fact do, tend to acute and fatal disease.

I have yet to learn that amongst a primitive people the ravages of tuberculosis are confined to the adult population. How, then, may we explain the relative immunity in an old civilisation? That it is not to be explained by small doses of infection during childhood may be proved by a simple question: "Why does a small dose of infection during childhood produce in the child of an old civilisation relative immunity, and in the child of a new civilisation an acute and fatal illness?" If any man shall answer that it is "because of a small dose of infection during childhood," he adds nothing to knowledge, and, indeed, adopts a form of argument which has been generally regarded, no doubt unjustly, as peculiar to women.

I suggest as a more probable explanation that in an old civilisation the race has become acclimatised to the conditions of civilisation, and that consequently general resistance to infection is higher than it is in a people living under the same conditions but not acclimatised.

If this view be accepted as offering a more probable explanation of the facts, then we may continue the campaign against tuberculosis on established lines with all the more prospect of success. By making the general surroundings of civilised life approximate as far as possible to conditions of Nature in regard to air space, sunlight, and suitable nourishment, the resistance of the people will be raised and the opportunities for infection diminished. (Applause.)

Dr. CAMAC WILKINSON (Australia): Mr. Chairman, Ladies and Gentlemen,—In thanking Prof. Calmette for his illuminating and suggestive address, we cannot forget in these days of peace that he had to suffer the horrors of war for many years at Lille as a loyal citizen of France. We rejoice that, in spite of all that, Prof. Calmette survived and is with us to-day.

There are two points I would mention anent this discussion. Although I was attached to large hospitals in Sydney for twenty-seven years and more, and even created a skin department at the Sydney Hospital for the study of lupus, I did not once see a case of lupus during this period. Is this a proof that heliotherapy may be a practical way of treating superficial tuberculous lesions? Again, it was found by Dr. Littlejohn that the von Pirquet reaction was positive in less than 5 per cent. of nearly 500 children who were tested. This percentage is in striking contrast with the percentages (90 per cent. or more) obtained in children in the Zurich and Vienna hospitals and those obtained in a Berlin hospital (57 per cent.). These figures do not show the frequency of the von Pirquet reaction in the general population, but in the hospitals filled with patients drawn from the poorest classes. This high percentage loses any significance when it is known that in the Zurich and Vienna hospitals 50 per cent. of the deaths and in the Berlin hospital 33 per cent. of the deaths are due to tuberculosis. The truth is that any statistics upon the morbidity and mortality from tuberculosis are untrustworthy unless controlled by post-mortem examinations. In England the rarity of post-mortem examinations precludes us from forming any accurate idea of the real prevalence of tuberculosis in the community, and unless and until post-mortems are far more frequent we must be content with mere guesses at truth and refrain from dogmatic

statements. I speak as a* pathologist who knows from facts how often tuberculosis crops up in unexpected places—even in hospitals.

For me, personally, it is a matter of great interest that tuberculin has been the chief weapon upon which Prof. Calmette has based the argument of his interesting discourse. So far von Pirquet's method has been applied. Except in children I have long discarded von Pirquet's method, and even in children the subcutaneous method tells much more. Von Pirquet's test may be sometimes too delicate and sometimes not delicate enough. The subcutaneous test can be graduated, and produces a local, general and focal reaction according to the dose. It is not always possible by means of tuberculin, even within a week, to say definitely that there is both tuberculous infection and tuberculous disease; but if there is an evident reaction with the first doses, further doses for a period of a month or more in the form of tentative treatment yield evidence either that living and active tubercle bacilli exist somewhere in the body or the reverse. The method of testing and skill in interpreting the effects are not to be learnt from text-books. They must be studied and learnt at an institution where the methods are constantly in practice. I therefore contest the view that tuberculin reactions can only decide that there has been *infection*. The proper exploitation of tuberculin in diagnosis can also determine the presence or absence of tuberculous *disease*. The value of a negative reaction is beyond doubt, and for the simple purpose of deciding that tuberculosis is absent—when the disease is suspected—tuberculin tests should *never* be omitted. Needless to say tuberculin as a diagnostic agent is not only trustworthy but safe. I have used tuberculin for diagnosis in season and out of season for thirty years in suitable cases, according to well-understood rules, and I have never seen any effect to suggest the idea of danger. At last, at a tuberculosis congress, tuberculin in diagnosis has been the subject of an interesting discussion; in the time to come tuberculin as a remedy for tuberculosis in early and moderately advanced cases of tuberculosis in all its forms will take its rightful place in therapeutics.

With regard to the supervention of acute generalised tuberculosis in dark races suddenly imported into towns and countries, as during the war, I am bound to say that the tubercle bacillus may not be the only factor concerned: alcohol, change of climate, of habits of life, of companions, of environment, and of food, drink and clothing are also determining factors. Moreover the colour of the skin, the defective supply of internal secretions, and, most important of all, mixed infection caused by influenza bacilli,

streptococci, pneumococci, and even the specific spirochæte may determine an acute form of inflammation which can only be differentiated from acute tuberculosis by bacteriological analysis. (Applause.)

Dr. RIST (Paris) : Mr. President, Ladies and Gentlemen,—I was very much struck by the experiments which Dr. Landis brought before us concerning the possible part played by heredity in the susceptibility to tuberculosis. I think we all agree that the view of hereditary predisposition, as it was conceived some years ago, has no more right to existence. Experiments like the Grancher system, which was explained yesterday by my friend, Dr. Armand Delille, prove conclusively that if a child of consumptive parents is taken away from them early in life and brought up in non-infectious surroundings, he will not only not develop tuberculosis, but that the rate of tuberculosis incidence among these children will be lower than among children brought up in cities and not coming from tuberculous parents. Therefore, in that sense, heredity does certainly play no part in the diffusion of tuberculosis.

The same thing can be said of the question of races. We believed formerly that the native races of Africa or of Polynesia had very high susceptibility to tuberculosis. We now know that their immunity is due to their not having been infected in their childhood, that there is no racial susceptibility record regarding them.

The fact has been emphasised once more during the war by the comparison between the tuberculous incidence among the black contingents coming from Central Africa to France, and the coloured element of the United States army. Whereas the African soldiers coming from a non-infected area have been decimated by acute forms of tuberculosis, the death-rate of the coloured contingent of the United States army in France has not been very far in excess of the death-rate of the white part of the contingent, because the negro element in the United States lives in conditions of civilisation in many respects quite similar to the conditions of the white population.

Furthermore, as has been pointed out last year by my friend, Col. Lyle Cummins, in a paper published in the last 'International Review of Public Health,' the fact that the native from Africa brought into contact with civilised life becomes an early victim to acute forms of tuberculosis, whereas his parents and his surroundings were not tuberculous, shows that heredity plays absolutely no part in this form of tuberculosis. If these people, having no ancestors who were tuberculous, succumb so readily to tuberculosis as soon as they get in contact with civilised people, it disproves the idea that

they should have born with them a specific resistance due to heredity to tuberculosis.

Nevertheless, I have met these last few years with some facts which, however contrary to the views that I held before, have impressed upon me the idea that some form of hereditary predisposition may play a minor, but nevertheless interesting, part in the diffusion of tuberculosis in some races. We have been too much accustomed to associate resistance to a specific organism with general physical resistance. As a matter of fact, the resistance or the susceptibility to a specific organism has very little to do with what we call, generally, good health. As my friend Dr. Halliday Sutherland has already used a sporting simile, I may be allowed to make another one. I suppose a man like Carpentier is able to receive many very heavy blows from Jack Dempsey, and nevertheless to survive, but he probably would be unable to survive an inoculation of tubercle bacilli if he had never been infected in his childhood.

Physical robustness and resistance to tuberculosis are two very different things. I have come across, in my dispensary work, a few cases; they are exceptional, and I feel I must be cautious and ask you not to make me say more than I want to say: I have come across a few families where the surroundings were not tuberculous, the parents were not consumptive, the conditions of housing and living were perfect, the precautions taken by the parents regarding the children were as wise as they can be in an intelligent working-class family. They were families which had been followed constantly by the dispensary, and who adopted our advice. Nevertheless, in those families I have seen several children in succession fall victims to severe forms of tuberculosis as soon as they had reached the age of 20 to 22. I can mention a family of five girls and one son. The son was the eldest. He had a severe form of tuberculosis in 1913, for which I performed an artificial pneumothorax. He was eventually cured, after a very long treatment, when he got an acute illness, pneumonia supervened, and he died. Since that time the mother of the five girls has been in the habit of bringing those girls regularly to my consultation, and now three of those girls, healthy-looking, well-educated, well-living girls, have contracted a one-sided extended form of tuberculosis, and all three are now in a sanatorium with artificial pneumothorax.

Such cases, in my opinion, cannot be explained by a bad environment, cannot be explained by any of the circumstances to which we are wont to appeal when we want to explain tuberculous

infection. I could mention to you another family which is very near to me, living in the most luxurious and healthy circumstances in the country, where there are three children—two boys and one girl—between the ages of 22 and 25. The three children, although they have been under the most careful—I might say under the most lavish—medical supervision, although they belonged to the most enlightened circle and were the most docile patients that could be imagined, have died of rapidly progressing tuberculosis.

I cannot help thinking that there may be in some families some hereditary trait which can, in some circumstances, diminish the specific resistance to tuberculosis.

There is another stage of the question, and I wish some of our American friends could give us more details on what I am just going to allude to. You all know of that admirable undertaking which is known all over the world as the Framingham experiment. Well, one of the most interesting results of the Framingham experiment, in my opinion, was to confirm a view which, on several visits to the United States, I had found prevalent among tuberculosis workers, namely, that in some of the races whose co-operation makes that huge community which we call the United States there is a greater susceptibility to tuberculosis, and in some others a lesser susceptibility. I speak especially of the Irish and of the Italian races. Irish settlers and Italian settlers live in America practically under the same conditions. I think they pursue the same trades. I think their economic position is, in many respects, the same; they are of the same generation and in many ways they have the same habits, except perhaps for liquor—(laughter)—but that will be soon altered.

Well, the Framingham experiment—and I think my American friends will not contradict me—has proved, by very impressive figures, that the Italian race is certainly less prone to tuberculosis than the Irish race. I think if the Framingham experiment should continue only on those lines, it will open to us most interesting vistas concerning the diffusion of tuberculosis. There are few countries where such an experiment can be made—only the countries where the fight against tuberculosis is conducted along the more scientific and methodic lines, and where the means are at hand to conduct such inquiries. I could not but be impressed.

In my own country, in France, we have a somewhat similar condition. Although I could not give you figures like those which have come out of the Framingham experiment, we also have a part of our country which is inhabited almost entirely by the Celtic race,

and that is the part which we call Brittany, small Brittany, compared with Great Britain. The prevalence of tuberculosis among the Breton people in France is a well-known fact, and every man who has to do with tuberculosis in my own country knows that tuberculosis is very prevalent, not only in Brittany proper, but among the Breton people who come to work in the other parts of the country. It is a very prolific race; they are thrifty, hard-working people, and are victims of tuberculosis probably to a higher degree than any other section of the population in France. On the other side, we have part of our population which is of Italian race, and this more especially in the Island of Corsica. I have quite recently had an interview with the Chief Health Officer of Corsica, and he also gave me the impression that, after all, the Corsican peasant is much less prone to tuberculosis of the adult than the ordinary citizen of France. In the Provence district, in the southern districts of France, inhabited by representatives of the Mediterranean race—they are very close kinsmen to the Italians—tuberculosis is certainly less prevalent than in Brittany, and I should not say that the hygienic and the sanitary conditions of life are more healthy, in the ordinary sense of the word, in the south of France than in Brittany.

I would be very glad if some of the American members of this Conference would give their opinion about this question of the different susceptibility of the Italian and the Irish races in the United States.

One word only to conclude. We have all, during this Conference, made legitimate comments on the importance of the von Pirquet reaction. After all, everything that has been said and discussed here is the result of the introduction into practice of the von Pirquet reaction. Now, the history of the von Pirquet reaction, I think, is very instructive in relation to the history of progress in medicine. When the von Pirquet reaction was published it was hailed as a means, a practical means of diagnosis of tuberculosis which would be simpler and more faithful and precise than any of the other means we had at our disposal. In that respect it entirely failed. The von Pirquet reaction, I think everybody will agree, has no practical value, and, therefore, after the first exhilaration and joy about this new discovery, there was a great disappointment, and everyone accused the von Pirquet reaction of being a fallacy. It is one more example of the fact that a new discovery generally does not bring us what we, in our ignorance and in our prejudice, expected from it, but it generally gives us a rich harvest of facts which we ignored and which we did not expect from it. (Applause.)

Dr. A. K. CHALMERS (Great Britain): In considering the contrasted behaviour of tuberculosis among susceptible or virgin peoples, and in older and longer established communities, I think sufficient attention has not been given to the history which the disease has written in our own country. Going back to a time earlier than the introduction of present-day measures of treating it, you would find, in the first place, something that looked like evidence of the increasing susceptibility which new communities developed, and, at a later date, of the acquisition of a certain degree of immunity to infection, of which a falling death-rate was the expression.

I choose as illustration the death-rate for Scotland, as I am more familiar with its movement, although the same thing is occurring in England and Wales. Increasing susceptibility among the growing industrial populations in Scotland contributed, I suggest, to the upward movement of the death-rate from tuberculosis, which was abruptly terminated about 1872. In that year a change in direction took place, and since then the death-rate has fallen quite markedly, and it is impossible to say, at the moment, that the rate of decrease has been altered or become more rapid during the years of active effort to deal systematically with the disease.

There is no question whatever regarding the decrease; the question at the moment is, what has produced it? Many contributory causes would occur to everyone, all tending to raise the general resistance to disease of the individual, as shown in the simultaneous decrease of the general death-rate. But with regard to tubercle and the question of acquired resistance, it is important to note the changing proportion of immigrants in the populations in question, and in particular the increasing proportion of native-born among the populations in whom this immunity is becoming developed.

During the period of increasing death-rate, the industrial population was largely recruited by immigrants from the rural areas. These rural areas were not themselves free from tuberculosis, but the conditions were less favourable to infection than in the towns and other industrial areas.

During the period of increasing death-rate the rate was highest in these areas which had the greatest proportion of immigrants, whereas forty years later the greatest decrease in the death-rate occurred in these areas where the proportion of native-born showed the largest increase.

The periods thus contrasted illustrate, I think, the development of a susceptibility under exposure to conditions which favoured

massive infection, and the acquirement of a degree of tolerance related to the proportion of native-born among the community.

A further illustration of the conditions favourable to massive infection is afforded by industrial phthisis, and here I think some experimental work might be undertaken with advantage.

When it can be proved that the workers in a particular industry have a higher incidence of phthisis than was common at corresponding ages, the question appears to be whether these risks should not be borne by the industry involved.

A combined colony for workmen gathered from many kinds of industry does not seem a particularly hopeful proposition. But a hygienic workshop for separate trades would have the advantage of enabling a tuberculous workman to continue at the occupation at which he had been trained, in place of acquiring a lower standard of efficiency in a supplementary one. Further, it would afford the affected workman the best opportunity of obtaining productive work under conditions which would protect his fellow employees from infection. (Applause.)

Dr. HYSLOP THOMSON (Great Britain): I wish just in a few moments to refer to the presence of tuberculosis amongst a certain section of institutional population. I refer to the low-grade mentally defective and the progressively demented person.

I had an opportunity some years ago of investigating the incidence of tuberculosis amongst defective and demented persons in large institutions, and the following are the facts: In 1914 the death-rate was 20 per 1000. During the years of the war the death-rate had risen from 20 per 1000 to 118 per 1000. The clinical appearance of the disease amongst these defectives is very different to the disease amongst normal persons, or even amongst what we might call the normal insane. There is no cough. It is very striking to go through a large ward of sixty or eighty tuberculous patients and to hear no cough. There is no sputum, therefore infection is not by way of the sputum. What we do find, however, from the post-mortem, is that close upon 50 per cent. of these cases show intestinal tuberculous lesions. In other words, we are dealing with a form of tuberculosis in the human person which is very analogous to the tuberculosis which is met with in cattle, and the conclusion to which the superintendent of the institution and I myself came, after investigating all these cases, was that infection was conveyed by infected excreta, and that in no way was infection conveyed in those cases by sputum.

That is rather an important point, and Prof. Calmette, in his address this morning, referred to several agencies other than the sputum by which the tubercle bacillus could be ejected through either its human or its animal host. I am of opinion that, in this class of person, namely, the mentally defective, there is an enormous field for investigation with regard to the incidence and ætiology of tuberculosis. (Applause.)

Dr. MINOR (U.S.A.): Mr. Chairman, Ladies and Gentlemen,—May I, in answering Dr. Rist's question—which I am able to do because I was present at the National Association during part of the time that the experiment was being carried out—say that his impression is entirely correct. They did find at Framingham that the Italian race had less mortality from tuberculosis than the Irish. I think that is an experience which agrees with that of all of us in handling such patients.

However, Dr. Gerald Webb has kindly handed me certain extracts from a report by the Framingham Institute, which he had ready, and which at first sight seem to go against it. I read here: "The determination of 33 per cent. as the percentage of positive reactions from the von Pirquet test in children between the ages of one and seven years; the determination or the discovery of important racial variations in von Pirquet reactions, Irish stock showing 30 per cent. positive and Italian stock showing 51 per cent. positive, in converse order to the apparent degree of exposure to active tuberculosis; and the determination by a careful follow-up of the subsequent incidence of active tuberculosis in the positive von Pirquet group—an incidence practically negligible."

I need not tell you that this would seem to fall in with the views of Col. Bushnell.

May I, before sitting down, say one thing? With all due respect to the science and ability of Dr. Calmette, whom we all honour—we have all enjoyed and admired his beautiful work—even a scientist so well known as himself knows that hypotheses which have been insufficiently discussed among scientists can do inexpressible damage if they reach the great world before they are thoroughly digested; and I see, in the comments by the Press on Prof. Calmette's paper, great danger that the phthisiphobia which is being encouraged by our own profession should spread further than is advisable at the present time. I recognise that it is one of the steps that is carrying us to that point, but do not let us be carried away by enthusiasm, and raise in the public false

hopes in regard to a disease which we do not thoroughly understand. (Applause.)

Sir ROBERT PHILIP : Ladies and Gentlemen,—Our discussion is at an end. I am sure you will concur with me in voicing our high appreciation of the contributions to which we have listened to-day. Especially I desire in your name to convey to our distinguished friend and *confrère*, Prof. Calmette, our most grateful thanks for his masterly, scientific and philosophic introduction.

Will you allow me, before we part to-day, two sentences more ?

Some of our friends have supposed that the Executive Committee, in arranging the discussions of the Conference, have been too vague—that we have selected subjects that carry them into theoretic regions only. They want something more practical, something in regard to which they can go home and say, “We have learnt something.”

May I say, as a practical worker, one who has been so for a good many years, that we have to-day been concerned with the foundation of the building ? Without a good foundation to the building, whether in the practice of medicine or any other department, we are not going to have a sound structure. It seems to me, after experience of congresses, both of general medicine and of tuberculosis, that we have been very wisely guided in taking up this subject to-day. (Hear, hear.) It has been a most illuminating discussion, and, when an old hand can say that a discussion which has lasted forenoon and afternoon is illuminating, there is little ground for the suggestion of wasted time. (Hear, hear.)

Lastly, a word with regard to what my friend Dr. Minor has said as to the wisdom of publicly discussing matters which are controversial, matters with regard to which, say, Prof. Bernard, Prof. Calmette and others of us may have different opinions among ourselves. The objection, as it seems to me, savours of old times, when authority was absolute. We are living in modern times. This is the age of democracy.

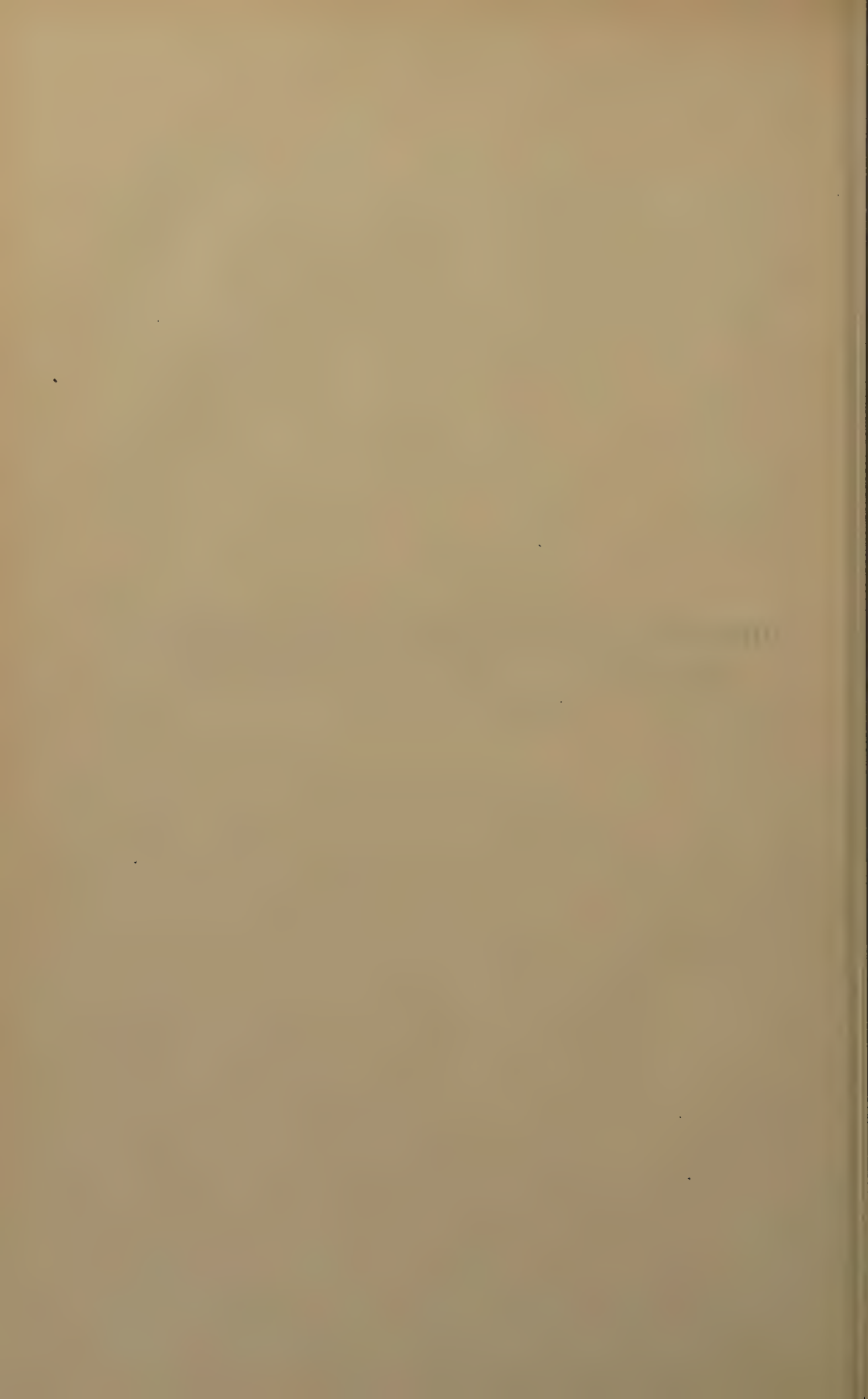
There have been sporting illustrations in our discussion to-day. I am going to take a military illustration. At the commencement of the tragic war, now happily over, there were reasons of various kinds why certain information should be kept back from the public. Soon, however, the opinion spread that a large amount of intelligence was unnecessarily held up, and finally our peoples in the different allied countries demanded that they should be put *au courant* with the actual facts, and the facts were in large part divulged.

Well, Ladies and Gentlemen, that is what we are endeavouring, as scientific workers, to do with regard to tuberculosis. We are not afraid of facts. We are not afraid of theories. But we are afraid of the ignorance of people who talk without knowledge. It was in that spirit that your Executive Committee resolved that we should have a free discussion on the basal facts regarding the incidence and spread of tuberculosis. (Applause.)

The Conference then adjourned.

IV.

DISCUSSION ON THE RÔLE OF THE MEDICAL PROFESSION IN THE PREVENTION OF TUBERCULOSIS.



IV.

THIRD DAY.

DISCUSSION ON THE RÔLE OF THE MEDICAL PROFESSION IN THE PREVENTION OF TUBERCULOSIS.

ON

THURSDAY, 28th JULY, at 10.30 a.m.

CHAIRMAN: Sir ROBERT PHILIP, M.D., LL.D.

Sir ROBERT PHILIP: Ladies and Gentlemen,—I have the honour to ask Sir Humphry Rolleston to open the discussion on the Rôle of the Medical Profession in the Prevention of Tuberculosis (Applause).

Sir HUMPHRY ROLLESTON (London)—

THE title, “The *Rôle* of the Medical Profession in the Prevention of Tuberculosis,” excludes the treatment of the actively tuberculous patient except in so far as it is concerned with preventing the spread of infection to others by treatment in sanatoriums and colonies and by other precautions. The obvious method of preventing tuberculosis by isolating all the carriers of tubercle bacilli would be effective only if adopted in the stage before tubercle bacilli are discharged from the individual, so as to segregate them before they could infect others, for they may become “open” and actively dangerous with little or no warning. If all cases of such latent infection could be detected by means of von Pirquet’s test they would amount to much more than 80 per cent. of the world’s inhabitants and to 90 to 95 per cent. of the urban population, and an enormous number of cattle. Segregation of the non-infected persons would indeed be a less impracticable conception, but it is clearly impossible to eliminate the tubercle bacillus from the world. It has been said that among civilised

races "tuberculous infection is universal whereas tuberculosis is relatively rare," and in Krause's* words, "tuberculosis is a price we pay for our civilisation." Speedy eradication of bovine tuberculosis is said to be impossible as it would involve slaughter of all cattle reacting to tuberculin—one-third to one-half, or about a million of all the milking cattle in this country—a great shortage of milk and huge expenditure (McFadyean†). But whether or not it is possible to eradicate tuberculosis from herds by the Bang system of separating the newborn calf from the tuberculous cow and killing off the advanced cases only, it is essential with as little delay as possible to revive the Tuberculosis Order of 1912 and 1913, the suspension of which on the outbreak of war in 1914 allowed the unrestricted distribution of milk from cows with tuberculosis of the udder or advanced disease. A resolution to this effect was unanimously passed at the Annual Conference of the National Association for the Prevention of Tuberculosis last year at Liverpool.

As infection in early life is almost universal and provides some degree of immunity, as shown by the virulence of the disease in savage races when exposed to the amenities of civilisation, and also in persons proved by post-mortem examination to have escaped this early invasion, it might be thought that the campaign against infection is not entirely logical, for in proportion to its success it would increase the number of persons unprotected by early infection; and, as it is improbable that the tubercle bacilli can ever be banished from this world, the death-rate would be increased. But this early infection is most effective in producing partial immunity to subsequent disease when the dose is small; and massive doses, such as may be administered by a tuberculous mother or nurse or in cow's milk to the infant, are prone to cause rapid generalised tuberculosis, or, short of this, tuberculosis that is particularly likely to recrudesce in later life. It therefore follows that the more the sources of infection are eliminated the less likely are massive infections to occur, and the nearer would be the approach to that ideal state, as yet not within the bounds of realisation, in which a measured dose of harmless but effective tuberculous vaccine will be administered to everyone soon after birth and repeated if and when it may be necessary.

It is surely not too Utopian a counsel that a periodic state census of all persons should be taken so as to classify them by

* Krause, A. K., 'Amer. Rev. Tuberculosis,' 1919-20, iii, p. 513.

† McFadyean, J., 'Proc. Roy. Soc. Med.,' 1921, xiv, p. 13.

means of von Pirquet's test into those with open tuberculosis, those with latent infection, and those as yet free from such infection. From this should follow the segregation of the first group, not only temporarily in sanatoriums, but subsequently, after passing through training colonies, for long periods or permanently in partially self-supporting village industrial settlements, where remunerative work should be adapted to sub-normal men. The education and disposal of the healthy children of the inhabitants of these settlements would require careful consideration. The huge undertaking of the segregation of the actively infective would, according to Prof. B. Moore,* at first cost from 40 to 50 millions annually, though falling subsequently in geometrical progression; but the advantages and eventual economy of such a scheme would vastly outweigh the initial difficulties. The two remaining groups of the population—those with latent infection and the smaller category without any tuberculous infection—should as far as possible be under medical observation, and particularly those with latent infection, a task which, at first Herculean, would, when the source of infection was largely cut off, be less difficult. Such periodic examination of children every six months by tuberculin tests, as advocated by Calmette,† would be of great service in detecting the onset of infection and so leading to a search for and elimination of the cause. It is surely not too much to urge that this plan should be tried in some selected area, and its results thus tested without delay. The tuberculin method of examination would obviously be far more effective than the ordinary physical examination with the stethoscope, the weighing machine, and so forth.

Efforts to diminish existing foci of infection should not be relaxed because complete eradication of the tubercle bacillus is now recognised to be an unattainable ideal. For this and other purposes education of the laity and also of the profession is of great importance, and, though much has been done, more widely-spread organisation is urgently needed. But although without the tubercle bacillus there would be no tuberculosis, the resistance of the hosts is next in importance from an ætiological point of view, and more important from the aspects both of the development of disease and of what can be done for its prevention. The problem of tuberculosis cannot be separated from that of general hygiene; improved sanitary and physiological conditions, proper housing, good feeding, healthy and not excessive work, suppression of alcoholism and of

* Moore, B., 'Trans. Nat. Assoc. Prevention of Tuberculosis,' 1920, p. 213.

† Calmette, 'Internat. Journ. Public Health,' 1920, i, p. 3.

venereal infection are essential for the health of the nations and the prevention of diseases of which tuberculosis is the commonest. In the past the relative importance attached to the seed (the tubercle bacillus) and to the condition of the soil has undergone oscillations; after a period of ascendancy the bacillus is now perhaps rather cast into the shade by the problem of improving the resistance of the race. It is of course obvious that the prevention of tuberculosis entails an enormous programme, and that each part of the campaign must receive adequate attention.

Medical men are in a position (1) to diminish and prevent infection, (2) to improve the resistance of the nation by securing healthy surroundings, proper feeding and occupation, and (3) to promote the hygienic education of the masses in order to obtain their co-operation in these essentials.

THE RÔLES OF MEDICAL MEN IN THE PREVENTION OF TUBERCULOSIS.

Medical men play a part in the prevention of tuberculosis in the following capacities:

(1) As individual workers in ordinary practice, in special branches of research, and as teachers of medical students.

(2) As medical officers of state and other organisations for the prevention of disease in general and of tuberculosis in particular.

(3) As members, leaders and advisers of the general public in forwarding all schemes for the improvement of the national well-being—the most efficacious means of combating the infection.

(1) *A medical man in ordinary practice* exerts an individual influence in looking after a certain number of people whose life-history and physical condition he knows as no one else can. He is the first line of defence against all forms of disease, and can carry out in miniature the functions discharged by bodies specially organised for this purpose. As tuberculosis is largely a home-bred disease, the medical attendant is well placed to supervise the general hygiene of the house and its occupants; he can thus educate them “in the laws of physiological righteousness,” as the late Sir Andrew Clark expressed it, guard them against the spread of infectious diseases, such as measles, influenza, whooping-cough and enteric fever, which, by reducing resistance, favour tuberculosis or the lighting up of latent disease; advise prophylactic treatment, such as the care of the mouth, throat, and the removal of adenoids; see that the food is suitable, and when necessary give directions about the milk supply; insist on care during convalescence from acute

infectious diseases, and on adequate rest and change of air ; and see that a growing child is not, in order to make up for time lost by an acute illness, over-pressed at school. The family medical attendant is in the unique position of being able to detect the earliest and intangible signs of failure of health shown by want of reserve power under fatigue and general functional insufficiency. By wise advice as to the need for change of air, by arranging for a stay at a convalescent home, by recommending relaxation of strenuous school life or alteration of existing conditions so as to relieve strain, he may time and again prevent the development of incipient tuberculosis. He should be in close touch with health and child-welfare visitors, and in cases of doubt as to actual presence of disease he can call in the tuberculosis officers or other experts in this disease for assistance. His value in the early diagnosis and notification of the disease, so as to obviate familial infection of others, cannot be exaggerated. Thus the separation of an infant from a mother with commencing tuberculosis must largely depend on his initiative. When a case occurs in a family there is much to be done in the arrangements for the treatment—sanatorium or domiciliary—of the patient, in investigation of the cause of the lighting up of latent tuberculosis, or of the source of recent infection in the home, at his work, or elsewhere, such as the public-house or the cinema, in arranging for disinfection of the house and precautionary measures to obviate the spread of infection. No doubt the process of notification may present difficulties and be resented by the patient and his family, but its advantages should be tactfully explained to those concerned. The success of this measure depends on the loyal co-operation of the medical man and the patient's family, and it is indeed deplorable that hundreds of persons die from tuberculosis without being notified at all, and that many notifications are made in the last stages of the disease, thus stultifying the object of the Order. Made compulsory for pulmonary tuberculosis in 1912, and for other forms in 1914, notification has no doubt, like so many other reforms, been retarded by the world war, but the time has now come when its enforcement should be seriously taken in hand and steps taken to extract a penalty for omission to notify a case.

In exhorting the general practitioner on the subject of tuberculosis, the late Sir William Osler summed up the matter as follows: "The leadership of the battle against this scourge is in your hands. Much has been done, much remains to do. By early diagnosis and prompt systematic treatment of individual cases, by

striving in every possible way to improve the social condition of the poor, by joining actively in the work of the local and national anti-tuberculous societies, you can help in the most important and the most hopeful campaign ever undertaken by the profession." It must, however, be remembered that, great as are the opportunities of the general practitioner, they may be accompanied by corresponding difficulties not only in effecting what he knows to be right but in lack of time, and also of the training possessed by medical officers of health and tuberculosis officers. The patient often does not seek medical advice until the disease is of considerable standing as a focus for infection of the contacts; and the result of his efforts to prevent the spread of the disease may be so disappointing as gradually to render him somewhat hopeless of the value of his share in the campaign.

The individual worker on the various aspects of tuberculosis—epidemiological, pathological and clinical—should not be forgotten as an element of the greatest potential importance in the prevention of tuberculosis. It is true that the laboratory worker is often part of a team, but this is not necessarily so, and when he is not, the solitary investigator deserves all the support, monetary as well as moral, that is possible. The consideration of the almost universal tuberculous infection that occurs in early life in civilised communities and of the partial immunity thus conferred has stimulated investigators, especially our distinguished visitor M. Calmette, to the search for a harmless and effective vaccine for infants.

Physicians attached to teaching hospitals have a great responsibility in forming the outlook of the future general practitioner in regard to tuberculosis. Without putting the position too forcibly, there are at the present time some points on which improvement is desirable. With the activity of special hospitals, at which a student rarely attends, and of tuberculosis dispensaries, with the natural reluctance of general hospitals to block their beds with cases of pulmonary tuberculosis and their desire to restrict admissions to those of "good" cases, namely patients with well-marked physical signs, there is a growing danger that full instruction in one of the commonest diseases will not be commensurate with its importance. In spite of Sir Robert Philip's shining example, very few medical schools in this country provide a systematic course of instruction in tuberculosis, in which the difficult problem of early diagnosis should receive special attention. But as tuberculosis dispensaries are now attached to a number of

teaching hospitals it should not be difficult to remedy this want; for there the early symptoms, diagnosis and food values can be studied under skilled supervision. Further—and here I must confess some consciousness of guilt—the definite diagnosis is allowed to turn too exclusively on the results of examination of the sputum for tubercle bacilli. Early cases are often overlooked, because it is not realised that diagnosis often can and should be made in the absence not only of tubercle bacilli in the sputum but of most of the commonly recognised physical signs in the chest. It is only too obvious that by this delay until the case has become open and a focus of danger the spread of infection is enormously increased. Apprenticeship in physical signs—and to become proficient requires much more time and application than is often assumed—is not uncommonly neglected, with the comforting excuse that after all the final decision will be made in the laboratory by someone else—a procedure not unlike that of trying to close the stable door after the horse has gone. Even more important than the refinements of auscultation and percussion is close attention to the patient as a whole, and the cultivation thereby of that mental process, probably in part at least, a product of the unconscious, that may be described as clinical instinct—a term that has been rather unkindly defined by some of “the younger school” as “blind-man’s bluff.”

The need for the creation of University Chairs in Tuberculosis such as that at Edinburgh (Sir Robert Philip), and that most recent one in the University of Wales (Col. S. Lyle Cummins), has often been voiced at these meetings, but the supply falls far short of the demand.

(2) *The part played by medical men as medical officers of state and other organisations* for the prevention of disease and of tuberculosis in particular has of course the greatest power for success, and on this all-important aspect Sir George Newman will speak with such authority that no further reference here to it is appropriate.

(3) *As members, leaders or advisers of the general public and of municipal and other bodies*, particularly the National Association for the Prevention of Tuberculosis, which deserves their whole-hearted support, medical men can play the part of experts in insisting on the paramount importance of improving the physical welfare of the people, and can take an active share in the investigation and correction of the economic and social conditions that are responsible for unemployment, poverty, and so for disease. The improvement of

the environment and of physical welfare of the nation is a very wide field, and to meet with success, the details, which are too obvious and numerous to describe, and some, such as the abolition of poverty and of strain, very difficult to attain, must all receive attention. To mention some only—good living accommodation, sufficient and proper food, fresh air, sunshine, the suppression of the smoke, spitting and dust nuisances, freedom from overwork, systematic attention to industrial hygiene, a pure milk supply under municipal control, and the support of garden cities, open-air schools and foster homes for the children of tuberculous parents.

Syphilis reduces the resistance to infection and thereby favours the onset of tuberculosis, or may allow latent tuberculous infection to become active. The influence of congenital syphilis in disposing to active tuberculous disease has not perhaps received the full attention it deserves, and the apparent symbiosis of the tubercle bacillus and the *Spirochæta pallida*, for example in the lymphatic glands, requires wider recognition. Fuller statistics showing the incidence of tuberculosis in patients already syphilised and the influence of syphilis on the prognosis of tuberculosis are desirable. Statistics on the incidence of tuberculosis in syphilitic subjects vary considerably, and it is desirable that they should be collected in separate groups showing the incidence of tuberculosis in the early and later stages of syphilis. Measures advocated for the prevention of syphilis have aroused much feeling among earnest and conscientious publicists, and though it is a subject bristling with difficulties, I must express my own opinion that it is essentially a medical problem, and therefore that venereal disease should be treated on the same lines as other infections.

The important disposing influence exerted by *alcohol* in favouring the onset of tuberculosis has long been recognised, and, to quote a recent example only, was shown in the war by the freedom from tuberculosis of German prisoners in France who were unable to obtain alcohol. A graphic comparison might be drawn between this picture and the great influence of starvation in producing tuberculosis in Germany, which led some German medical men to maintain that tuberculosis should be regarded as primarily not an infection but a nutritional disease which can be much more effectively controlled by feeding than by the prevention of infection. There can be little doubt that total prohibition would greatly diminish the incidence and death-rate of tuberculosis, and it will be interesting to have the statistics from America bearing on this point.

The active *propaganda campaign* so energetically carried out by the National Association for the Prevention of Tuberculosis, by

means of posters, exhibitions, lectures, lantern-slides, booklets and so forth, has also been made attractive by the moving films in America and France. Such methods provide in an easily assimilable form the information that should ensure active participation in the prevention of tuberculosis, for it appeals to one of the strongest instincts, namely that of self-preservation. Without the whole-hearted co-operation of the public appreciable success must be impossible. But such a scheme of propaganda, essential as it is now, should not be necessary if, as was urged in 1890 by Sir Arthur Newsholme, elementary schools are made the centres of education in the physiology of healthy life and in hygiene, so that this important knowledge is impressed on the plastic mind of the child *pari passu* with that of the three R's and becomes second nature. This is obviously a matter for the State, and I will no longer stand between you and its eminent spokesman. (Applause.)

SIR ROBERT PHILIP: Ladies and Gentlemen,—Sir Humphry Rolleston's masterly statement has been so clear and luminous, both in matter and in method of delivery, that it seems unnecessary to have it translated at the moment. I am sure you agree with me as to its illuminating quality. (Hear, hear.) It is now my privilege to call on Sir George Newman.

SIR GEORGE NEWMAN (London)—

Why the State should Intervene.

A generation ago Mr. Lecky, the English historian, set out, in his *Democracy and Liberty*, the four departments of public medicine, in which he considered the State should intervene in order to raise the standard of national health, as being (a) research into the causes of disease and methods of cure, (b) the provision of adequate medical services for the poorest of the population, (c) the establishment of appropriate qualifications for persons entering the medical profession, and (d) the prevention of insanitation and the spread of infection. Since that date many changes have taken place in the evolution of communal action on behalf of the individual, and statesmen in various countries would now probably enlarge the bounds set by Mr. Lecky. Whatever may be said of such enlargement, or even of the inclusion of some of Mr. Lecky's own terms, there is probably all over the world a general consensus of enlightened opinion that it is the duty of the State to accept the responsibility of protecting the community by the prevention of disease. Apart, however, from

this general proposition, there are in regard to tuberculosis some particular grounds for such State intervention.

In the first place the *magnitude and character* of the tuberculosis problem is such that it vitally affects, not the sick man only, but the well-being of the nation as a whole. The mortality from tuberculosis is not only extremely high in all civilised nations, but its characteristic feature is that it cuts off human life in its adolescent and adult prime; there is before the event of death an average period of three years of sickness, invalidity and incapacitation, which makes a serious demand on the financial resources of the individual, the family and the community; there is, further, the heavy cost of treatment and nursing; and lastly, there is an exceptionally large body of pauperism created by this disease, as was pointed out by the English Poor Law Commissioners in 1838.

The solution of the problem of tuberculosis, quite apart from its strictly medical aspect, involves in the second place the consideration of various *economic and social factors* falling within the sphere of State control. It is a matter of common knowledge that the poorest classes and the inhabitants of the most congested districts are the heaviest sufferers from the ravages of the disease, and reference may be made here to the interesting and instructive (if valid as I believe) relationship which some observers claim to trace between the cost of living, the price of staple articles of diet, and the relative value of wages on the one hand and mortality from tuberculosis on the other. In addition, there are numerous and important factors affecting the environment of the individual in regard to housing, sanitation, food inspection, factory and workshop supervision, the provision of facilities for healthy recreation, and the hygiene of industrial life generally, the handling of which in all nations is undertaken in greater or less degree by the Government.

Thirdly, there is *need for co-ordination by the State* in the anti-tuberculosis campaign, because, without the guidance and assistance of some central authority, the sporadic and isolated services of the medical practitioner, however skilled, conscientious and satisfactory, fall short of good effect; while the schemes of voluntary and philanthropic agencies, however efficient and praiseworthy in themselves, are liable to suffer from a lack of co-ordination and continuity of effort. There is also need for organisation of the available medical resources, whether in the form of private practice, or in the appointment and supervision of special medical officers, or in the provision for research work, and adequate medical facilities cannot be provided economically except by organised communal enterprise.

There is yet one further reason why the State should intervene in the anti-tuberculosis campaign, and that is that the prevention of this disease is probably more largely a matter of *public education* than is the case with influenza, plague, cancer, or most of the other great scourges of the human race. The education which is required should begin in early life, and should continue, at all ages, for both sexes and for all classes of the community, lay and professional. It should be both wide and deep, affecting the inner social life of the people as a whole, and there is no means of organising such a system of education except at the hand of the State. Above all, the adequate education of the medical student in tuberculosis is necessary.

The Form of State Intervention.

When we come to consider the form of State intervention in regard to tuberculosis, it will be found that whatever be the form of national government the organisation must be both central and local. In some countries the very constitution itself is built upon local autonomy; in others the chief responsibility may, for a certain number of years or centuries, rest with the central government. Be that as it may, we shall never contribute to the conquest of this disease by wise statecraft without placing upon the central authority the duties of advising as to general principles, supervising administration, and co-ordinating action, as we shall never win without imposing upon the local community or authority the duty of carrying out the particular measures called for in the actual place where the population is born, and where it lives and labours and dies. Further, both centrally and locally, we must leave nothing to chance. We must bring to bear upon our statecraft all the verities of science, combined with all the inspiration and consent of public opinion and voluntary effort which alone makes government effective and enduring. To grapple successfully with this disease each State needs legislative powers and administrative machinery. But it needs also the willing co-operation of the people as a whole.

The Sign-post of the Future.

One of the remarkable and most hopeful features of this disease is that during the last seventy years, in which more or less comparable statistical returns have become available, we have been the witnesses of a great decline of the mortality from tuberculosis among civilised peoples. In England and Wales in 1847 there died from

phthisis (excluding acute military tuberculosis) 3,189 persons per million living. . . By 1872 that figure had fallen to 2,384. . . Another 25 years reduced it (in 1897) to 1,356, and in 1913 (the year before the European War) the figure had fallen to 961 persons per million living. . . There was in most countries a slight rise during the war years, but in 1920 the standard death-rate from phthisis had fallen in this country to 842 per million living—a decline since 1847 of 74 per cent. Nor is England alone in showing this considerable decline in the mortality of tuberculosis. It has been happening in greater or less degree in all civilised nations. What is its cause? In the first place I think it may be assumed that those general factors, partly artificial, partly natural, which have effected a reduction in the general death-rate, have also had at least an equivalent effect in the reduction of the tuberculosis death-rate (and these two death-rates must never be considered apart from each other).

In the second place, and without being didactic or entering into highly interesting, if somewhat controversial theories, I think we may at least say that, since 1850, in regard to the striking reduction of the death-rate from tuberculosis:

- (a) There has been considerable progress in sanitary reform and great improvement in social well-being and nutrition.
- (b) There has been a steady increase in our knowledge of the etiology, pathology and modes of transmission of the disease, as well as of its earlier clinical manifestations.
- (c) There has been an advance in the application of that knowledge to the prevention, early diagnosis and treatment of the disease.
- (d) There appears to have been an increasing degree of immunity, due in part to the increased resistance of the population, and in part to those processes of natural protection of which we know so little.

It is not possible to differentiate the relative effect of these four factors—for, as Leonardo da Vinci said, “Nature varies its factors”—but together they have won a victory over disease. Together they point the way to future conquests.

The General Outlook.

No fallacy is more fallacious or mischievous than the idea that by some one specific method we shall conquer a protean disease like

tuberculosis. It is futile and misleading to take a narrow outlook or regard any isolated method of prevention as a panacea. The attack must be broad, continuous and co-ordinated, and it must be both general and particular. The twofold purpose of general measures is to increase the forces of resistance and immunity of the individual and to restrict the spread of infection. Amongst such general measures for which the State has been responsible in this country may first be mentioned the provision of a more adequate medical service under the National Insurance Act, introduced to Parliament by Mr. Lloyd George in 1911—one of the most epoch-making Acts ever passed by the Government of this or any country. I mention it here as it creates a dividing line in regard to State intervention in tuberculosis. The medical benefit clauses of that Act provide for a system of joint contributions by employers, employees and the State which entitle the great bulk of the working classes of the community to free treatment when ill, and in the event of their incapacitation from work to a pecuniary benefit during the period of their unemployment. This benefit, quite apart from sanatorium benefit, must have a profound effect on the crusade against tuberculosis, for by this means we begin at the beginning.

But the Insurance Act is not alone. The State has devised measures to improve the housing conditions of the people and their whole sanitary environment (including sufficiency of domiciliary cubic capacity and the preservation of open spaces) from the famous Public Health Acts of 1848 and 1875 down to the Public Health and Housing Acts of our own day. Further, these hygienic principles and desiderata have been carried from the home to the workshop to counteract the debilitating influences of certain industrial occupations, which have been shown by the facts of their higher incidence and mortality rate to predispose to the development of tuberculosis. Under the Factory and Workshop Act, 1901, conditions which predispose to the disease in the factory or workshop, such as aggregation of workers, lack of ventilation, dust and insanitation, fatigue and lowered vitality, are controllable, and an immense system of indirect prevention is now in existence. Even more direct in application to tuberculosis are the Workmen's Compensation Act of 1906 and the Workmen's Compensation (Silicosis) Act of 1918, which empower the Home Secretary to make schemes for the payment of compensation by employers (on the basis of a general compensation fund) to workmen in any industry involving exposure to silica dust, who suffer disablement or death owing to fibroid phthisis or silicosis of the lung. Under the scheme the workers employed are required to undergo

a periodic medical examination at prescribed intervals by medical officers appointed by the Home Secretary, and if on such examination the workman is found to be suffering from silicosis, with or without tuberculosis, he is furnished with a certificate accordingly. In order to prevent overlapping, the medical officers chosen are the tuberculosis officers appointed by the County Councils. Joint committees of both employers and workmen determine the amount and apportionment of award of compensation.

Another important group of general measures introduced by the State are those dealing with diseases such as measles, influenza and lobar pneumonia (which predispose to tuberculosis), and those dealing with the health of the child. There is, for instance, the Maternity and Child-Welfare Service, established just before the war and still in its infancy, doing admirable work which will tend to diminish the prevalence of such diseases as measles, rickets, whooping-cough and malnutrition, which predispose to tuberculosis, while the direct infection of infants with bovine tuberculosis will be even more directly attacked at its source. There is also the complete service now established for the medical inspection and supervision of all school children and the treatment of those who are sick or physically or mentally defective. The recognition of the earliest signs of tuberculous disease, and of those ill-defined signs and symptoms which constitute what is commonly known (for want of a better term) as "pre-tuberculosis," lies with the medical officer in charge of the child. Under the Education Acts the local education authorities have power to provide for the education of such children under the most favourable conditions in (a) open-air schools, (b) residential schools of recovery, or (c) sanatorium schools (for pulmonary and non-pulmonary tubercle). The School Medical Service is also concerned with the teaching of hygiene and physical training in all elementary schools, with the provision of school meals for the under-nourished, and with the medical supervision of juvenile employment.

There is yet another general direction in which the governments of nations may contribute to the health of their peoples in relation to the prevention of tuberculosis, and that is in regard to the hygienic control of food and drink. The Royal Commissions of 1895 and 1907 (Final Report, 1911, Cd. 5761), in conjunction with similar inquiries in other countries, confirmed the fact of the conveyance of tuberculosis by milk, meat and other foods, and this knowledge has, in Great Britain, entered into numerous Acts of Parliament or Orders of the Privy Council. The Dairies, Cowsheds

and Milkshops Order of 1885 has been the means of great improvement in the quality of the milk supply; the Tuberculosis Order of 1913 requires notification of udder disease or general tuberculosis with emaciation in cows, and slaughter with compensation under prescribed conditions; and the Milk and Dairies (Consolidation) Act of 1915 prohibits the sale of tuberculous milk and provides comprehensive measures to stop the production and supply of such milk. Unfortunately owing to financial exigencies following the war both these latter Acts remain temporarily in abeyance. Again, the action which Governments have taken to prohibit, control or restrict the excessive consumption of alcoholic beverages furnishes another step in the direction of the prevention of tuberculosis, for, without accepting extravagant claims as to the intimate relationship obtaining between alcoholism and tuberculosis, there can be no doubt that sobriety in a nation will be favourable to and engender a non-tuberculous people.

The general measures referred to thus far are those which appear to exert their favourable influence in reducing the incidence of tuberculosis by building up the stamina and resistance of the individual. Another large group of general measures fostered by the State comprise those which exert a benign influence by reducing the amount of infective material and checking its dissemination. We have for instance the valuable work done by the Poor Laws and other similar enactments in providing isolation and nursing for advanced cases of phthisis, who might otherwise prove a danger to their relatives and friends; we have regulations and bye-laws against spitting in public places; and we have various methods of public instruction, and of professional education in medical schools receiving grants in aid from Government. Much valuable propagandist work has also been done by the Press and by voluntary societies such as the National Association for the Prevention of Tuberculosis, the Red Cross Society, the Women's National Health Association of Ireland under the leadership of the Marchioness of Aberdeen and Temair, and the King Edward VII Welsh National Memorial Association.

The Particular Outlook.

Although, as I have endeavoured to show, the State can claim to have done much in the way of bringing about the decline in the tuberculosis incidence and mortality by the conception and carrying out of certain general measures designed to increase the resistance

and immunity of the race and to diminish the spread of infective material, it has until comparatively recent years been left almost entirely to voluntary enterprise to carry the attack into the enemy's lines.

Before the present century the Government in this country had taken little or no action particularly directed against this disease. A sign of the awakening of the national conscience and sense of responsibility which had taken place was the introduction in 1908 and the extension in 1912 of regulations for making the disease notifiable (*The Public Health (Tuberculosis) Regulations, 1912*). Voluntary effort prior to 1911 was, with one exception, unsystematised and lacking in comprehensiveness and co-ordination, consisting as it did chiefly of treatment under the old "letter" system at the out-patient departments of the various general hospitals. A few so-called chest hospitals were dealing with one portion of the problem and a certain number of privately owned sanatoria were doing noble pioneer work in the field of treatment.* But there was no relationship between the various workers and organisations, and the fundamental necessity of attacking the problem at its source, namely in the patient's home, was completely lost sight of. The exception to which I have referred was the comprehensive scheme of co-ordinated measures which had been gradually built up in Edinburgh by your new President, Sir Robert Philip, around the Tuberculosis Dispensary founded by him in 1887, and which included sanatorium, hospital and working colony.† This scheme, however, was a voluntary one, dependent financially to a large extent on private donations, and as such was unsuited to the needs of the country as a whole.

Then came the National Insurance Act in 1911 with its Medical Benefit clause (to which reference has been made), and its Sanatorium Benefit powers under which a definite proportion of the accumulated deposits was to be set aside annually for the provision of treatment for insured persons suffering from tuberculosis. In 1912 a departmental Committee was appointed by Mr. Lloyd George under the leadership of Mr. Waldorf Astor, M.P. (now Viscount Astor), to report upon a general policy in respect of the problem of tuberculosis in the United Kingdom, in its preventive, curative, and other aspects, which should guide the Government and local authorities in making or aiding provision for the treatment of tuberculosis in

* *Thirty-fifth Annual Report of Local Government Board, 1905-06, Cd. 3657. Sanatoria for Consumption (Bulstrode).*

† *'The Control and Eradication of Tuberculosis,' 1911.*

sanatoria or other institutions, or otherwise. The findings of this Committee, published in interim and final reports in 1912 and 1913 respectively, marked a turning-point in the history of the anti-tuberculosis crusade in this country. In many ways they marked its beginning as a national movement. Their recommendations were adopted *in toto*. From the first this Committee took the view that "no campaign against tuberculosis could be instituted with reasonable prospects of success if provision were made for the treatment of a section only of the population. Recognising that this was the case they laid down in their interim Report that one of the most important conditions of any scheme which might be adopted was that it should apply to the whole community. By the National Insurance Act no financial provision was made to pay for the treatment and maintenance of persons who were not in the category of insured persons or their dependants. A gap was thus left which would certainly have much increased the difficulty of conducting the campaign to a successful issue" (Final Report, p. 5). Fortunately the Government came to the rescue and offered to pay local authorities which instituted complete schemes for dealing with all sections of the community (insured and non-insured) a maintenance grant equivalent to one-half of their annual net expenditure.

"Sanatorium benefit" came into force on July 15th, 1912, and for the first time in our history the State undertook the direction of offensive operations against tuberculosis. The councils of counties and county boroughs (and in London of metropolitan boroughs) were the local authorities made responsible for carrying out the campaign in their respective areas, and the Public Health (Prevention and Treatment of Disease) Act, 1913, empowered all sanitary authorities to make such arrangements as may be sanctioned by the Ministry for the treatment of tuberculosis. The whole scheme for insured and non-insured is now unified and imposed upon the larger local authorities, which are also empowered to undertake systematic after-care of the consumptive (Public Health (Tuberculosis) Act, 1921). Had it not been for the war it would probably have been possible next year to have made an interesting survey of the results of ten years' endeavour; as it is, the anti-tuberculosis work of the country was not only largely crippled during the war by depletion of staff, but the war added new problems in the shape of a temporary increased death-rate from tuberculosis, particularly among women, and of the necessity for providing adequate institutional treatment for large numbers of discharged and demobilised sailors and soldiers found to be suffering from tuberculosis.

Such, then, in a few words, has been the history of the official measures, general and particular, directed against tuberculosis in this country. It is a long and famous story of reform, founded upon the growth of the science and art of Medicine and the expansion and application of the Public Service.

Advance in Other Countries.

Before proceeding to consider briefly the national scheme in Great Britain it may be instructive to take a general survey of the particular measures introduced and in operation in other civilised countries. *Notification* of the disease is now an established measure in most countries, though in some it is still of a voluntary nature. *Prohibition of spitting* in public spaces and the disinfection of rooms occupied by phthisical patients are also measures which are in common use in most countries. *Propaganda and education work* are carried out in the United States, Canada, Australia, South Africa, France, Germany, the Netherlands, Norway, Sweden and other countries. Measures for the control of the dissemination of *bovine tuberculosis* through food and milk are in force in most of the British Dominions, in the United States, and in some European countries. Most countries have now established what, for want of a more appropriate term, are generally known as "*dispensaries*"—institutions which vary considerably in their functions. In some countries the dispensary is little more than an office for the distribution of food, milk, clothing and other forms of assistance. In other countries the dispensary is merely a clinic or out-patient department for the treatment of sufferers from the disease; whilst elsewhere, in the United States and in some of the British Dominions, the dispensary serves as a clearing-house and focus of the anti-tuberculosis organisation. The provision of *sanatoria and hospitals* constitutes another measure which in some countries is made by the State itself, in others is left entirely to voluntary effort, as until 1911 was the case in Great Britain, whilst in Germany these institutions have been provided on an extensive scale by the insurance authorities. In most countries some provision of the kind has been made. Speaking generally, these and other measures appear to have been co-ordinated into more or less complete State schemes for the control and eradication of tuberculosis on a comprehensive basis.*

* Reference may be made here to the generous work being done in France by the Rockefeller Foundation. Its activities commenced during the war in 1917 by the establishment of "demonstration tuberculosis schemes" in a department (corre-

The Complete National Scheme.

The Departmental Committee on Tuberculosis in 1912 recommended a scheme "intended to complete existing public health administration in respect of tuberculosis." Assuming a system of notification of the disease, the scheme was based on the establishment and equipment of two units, related to the general public health work of the local authority. The first unit was to consist of the tuberculosis dispensary, or an equivalent staff, and the second unit of sanatoria, hospitals, etc., in which the institutional treatment is given. The Committee were of the opinion that "the tuberculosis dispensary should be the common centre for the diagnosis and for the organisation of treatment of tuberculosis in each area, at which the various bodies and persons connected with the campaign against tuberculosis will be brought together." The function of a tuberculosis dispensary, they said, should be to serve as—

- (1) Receiving-house and centre of diagnosis.
- (2) Clearing-house and centre of observation.
- (3) Centre for curative treatment.
- (4) Centre for the examination of "contacts."
- (5) Centre for "after-care."
- (6) Information bureau and education centre.

One dispensary was suggested for every 150,000 to 200,000 of the population in an urban neighbourhood, whilst in a rural neighbourhood the population served would be smaller. The chief tuberculosis officer of the dispensary, they said, should be independent of control by any other medical man so far as his clinical duties were concerned; and he should be in intimate relationship not only with the medical officer of health, but also with general practitioners in the locality, and the medical officers of the several institutions (sanatoria and hospitals, etc.) which constitute

sponding to a county area in England) and in one arrondissement of Paris. These were operated for three years and have now been taken over by the French authorities. The Foundation has organised tuberculosis schemes for a number of French departments, established numerous tuberculosis dispensaries, secured the appointment of a number of full-time tuberculosis officers, established several training schools for public health nurses, provided scholarships to French doctors for a special course of instruction at Paris, carried on extensive propaganda work throughout France, and established laboratories for pathological diagnosis, all designed to become official national agencies. Such a record is worthy of the highest praise, and illustrates both the friendly co-operation between nations and the invaluable auxiliary service by which voluntary associations may initiate national schemes. It is interesting to compare this work with that of the King Edward VII National Memorial Association for the Prevention and Eradication of Tuberculosis in Wales, which has done for Wales as a whole what the Rockefeller Foundation is doing for France.

elements in the co-ordinated scheme. He should decide as to the suitability of patients for the sanatorium, the hospital for advanced cases, etc., in co-operation, so far as possible, with the general practitioners and with the medical officers of these institutions.

The Committee laid particular stress on the "primary importance to the lasting success of any scheme for dealing with tuberculosis that it should enlist the hearty co-operation and stimulate the interest of the general practitioners of the country. Their intimate personal relations with patients and their influence in the homes of the people are forces which shall be actively enlisted in the campaign against the disease, as aids to securing its early recognition and methodical treatment, as well as in promoting the effective after-care of cases of tuberculosis and encouraging those healthy habits of life which are so essential to building up the powers of resistance to the disease." These views, if we may judge from what Sir Humphry Rolleston has just said, are in full accord with the views of the leading men in the medical profession to-day.

Let me, then, summarise in conclusion the principal factors in a complete scheme in the light both of the Departmental Committee's recommendation and of our experience of present-day requirements in Great Britain.

(1)

We must begin with *Notification* of the disease. No scheme can be organised without a knowledge of the extent and nature of the problem. One of the most serious handicaps under which we are labouring is the failure of a number of practitioners to notify their cases when first diagnosed. As Sir Humphry Rolleston has suggested (and I am glad the suggestion has come from him first), some steps will have to be considered for ensuring compliance with this compulsory regulation unless great improvement is effected. It now frequently happens that cases are not notified till a very short time before their death. There can, in the majority of cases, be no excuse for such a state of affairs. If the practitioner is unable to arrive at a diagnosis of a doubtful case himself, he has not only the opportunity, but it is his duty, to call to his assistance the local tuberculosis officer, and avail himself of the clinical and bacteriological facilities now at the latter's disposal.

(2)

The *Dispensary*, under the guidance of the tuberculosis officer, should be the consultation centre for the neighbourhood, and one of

its chief functions should be to afford persons of all classes clinical and laboratory facilities for arriving at an early diagnosis of their condition. In view of the great difference between the curability of the disease in its early and later stages, the tuberculosis officer should make every effort to carry out an active search for such early cases, and not, as was too often done in the pre-dispensary days, leave the patient himself to detect the first suspicious symptoms of disease, and thus seek advice only when too late. Here we have the great reason for the systematic examination of all "contacts," a measure which should be carried out by tuberculosis officers more fully than has perhaps been the case hitherto, and I commend to my colleagues, the tuberculosis officers, a study of the new book by our distinguished guest Prof. Calmette, and especially its last chapter.* Another great function of the tuberculosis dispensary is the supervision and improvement of home conditions. The value of home visiting by nurse and doctor will hardly be denied if only for their own enlightenment, and yet there is observable a tendency on the part of some tuberculosis officers to abandon this aspect of their work. From an administrative point of view, perhaps the most important function of the dispensary is to serve as a clearing-house for all the cases which come under the purview of the tuberculosis officer. After thorough examination at the dispensary the patient should be grouped into various categories according to the type of institutional or other treatment most appropriate to each. The dispensary should also be a centre for treatment (a) in so far as the appropriate treatment for each case is prescribed there, (b) in so far as any particular form of treatment cannot "consistently with the best interests of the patient be properly undertaken by a general practitioner of ordinary professional competence and skill," and (c) in so far as the patient is uninsured, and after inquiry is found to be not in a position to obtain adequate treatment from a private practitioner. It will be obvious that under these conditions, and in view of the present lack of general confidence in any specific form of treatment suitable for administration at dispensaries to patients living in their own homes, the proportion of patients for whom dispensary treatment can properly be ordered is a small one.

(3)

Included in a complete scheme will be *Residential Institutions* (sanatoria, hospitals, etc.) for the various categories into which

* 'L'Infection Bacillaire et la Tuberculose,' Prof. A. Calmette. (Mason & Co., 1920.)

the patients may be divided. For the young there should be open-air sanatorium schools, both for "the pre-tuberculous" and for those with definite lesions; there should be hospitals and convalescent homes for those with non-pulmonary and surgical tuberculosis. For the adults there should be sanatoria for the treatment of early cases and hospitals or homes for the isolation of advanced cases, or there may be combined institutions for the treatment of patients in all stages of the disease.

At the sanatoria there should be special *Training Sections* where patients with more or less arrested disease may be "hardened up" prior to their return to industrial life, and at the same time learn the rudiments of some useful trade or occupation which helps to interest and occupy their minds, even if it be too elementary a knowledge to enable them to earn a living by it on discharge. A complete scheme may in the future include industrial colonies and village settlements, though their extension may lie beyond State financial resources of the present time. Some extremely valuable pioneer work has already been done in this country on these lines at Polton and Hairmyres (under Dr. Macpherson), at Papworth (under Dr. Varrier Jones), at Preston Hall (formally opened yesterday by H.R.H. the Prince of Wales), and elsewhere. It would be difficult to over-estimate the far-reaching effect of these important national experiments in treatment, training and continuous after-care, or to exaggerate the new spirit of hope and promise which they inspire—an effect and a spirit which differentiate them from previous work. The future alone will decide whether such ideas are capable of practical development on a sufficiently economic basis to justify their establishment on a larger scale in conjunction with the other factors of a complete scheme.

(4)

Another feature of a complete scheme must be *After-care work*, under which is included not only the supervision, care, and, if necessary, financial assistance of a patient on discharge from sanatorium, but a thorough study and a conscientious effort to put him in the best possible environment both at home and at work during the whole of his lifetime.

By way of summary, it may be said that we have in England and Wales 341 Tuberculosis Officers, 412 Tuberculosis Dispensaries and 18,000 beds for tuberculous patients in sanatoria and hospitals,

with 3,500 more beds in preparation. The number of cases notified was 73,332 in 1920 and there were 42,545 deaths from this disease. Most authorities agree that the success of this complete scheme depends upon four conditions :

- (a) Early diagnosis and notification, and the selection of right type of case for respective form of treatment.
- (b) A sufficiently long period of residence for sanatorium cases in a properly-managed sanatorium.
- (c) Thorough after-care work (including occupational therapy).
- (d) The willingness of the patient to begin treatment early, submit to its discipline, and persist in it continuously.

The sanatorium *principle* expresses the bed-rock scientific truth of the matter at the present stage of our knowledge, but the sanatorium *system* has often been so misapplied that it has failed and thus been discredited. What we now require, in all countries, is the sound practice expressing the true principle.

(5)

A complete Government scheme should include provision for *Research work*, for upon this depends our future progress. In Great Britain much valuable work has been done under the auspices of the Medical Research Council since 1914, despite the fact that such work has been greatly hindered by war conditions.

Dr. Brownlee's reports on his investigations into the epidemiology of phthisis in Great Britain and Ireland have been invaluable, and are expected to throw an interesting side-light on other problems, such as the incidence of early or late phthisis in certain trades. The relationship of phthisis to certain industrial conditions, such as the boot and shoe industry, munition factories and the printing trades, has been investigated, as also its relationship to certain dusty occupations. Bacteriological investigations by Dr. Stanley Griffith have been carried out with regard to the bovine bacillus and its relationship to surgical tuberculosis, and some extremely interesting work has been done by Dr. Gye on the effects produced in mice by the simultaneous introduction of tubercle bacilli and the salts of silica. Research work is also being done on the complement-deviation test and other methods of arriving at an early diagnosis of the disease. The results of various methods of treatment, such as sanatorium and tuberculin treatment, have been subjected to a statistical inquiry, whilst possible new lines of treatment by chemotherapy have been examined.

Similar work has also been accomplished in other countries,

and wherever research is pursued, the crucial issue of immunisation remains the supreme objective. Let me add that every worker in the prevention of tuberculosis, and not the laboratory worker only, should regard himself as *ipso facto* an investigator.

(6)

Finally, a word must be said as to the position of *the medical officer of health* or chief administrative head in a complete scheme. It is necessary that the various public health services should be administered by, and as, one Department. Otherwise there will be confusion. This does not imply that the medical officer of health should do more than supervise and be generally responsible for the administrative measures put in force. He receives all notifications, and he should make these available for the tuberculosis officer. He must also be responsible for the collection of statistics and the compilation of annual returns. He is also responsible in large degree for the general measures, to which I have referred, and for all the home visiting and sanitary conditions of his area. In practice it is often found convenient for the homes of tuberculous patients to be visited under the supervision of the tuberculosis officer, though any sanitary defects discovered are usually reported to the medical officer of health, and dealt with by him. There should be the most harmonious co-operation between the medical officer of health and the tuberculosis officer, and a close co-ordination of the institutions and methods they represent. Each can help the other in many ways, and both should work jointly with the medical practitioners of their district, for by so doing they will be advancing the common cause.

Conclusion.

"Nothing in progress," said Edmund Burke, "can rest on its original plan," and in looking to the future we must cultivate the open mind. There is no beaten track in the further conquest of tuberculosis. But we must endeavour to protect the healthy child and the adult from massive, frequent, or prolonged infection; we must fortify all the powers of resistance; and we must deal with the patient. Freedom of thought, wide and deep research and mobility of action will be necessary. Of much are we still in doubt, but of three things we may be certain: only by surveying the complex problem, as a whole, in the spirit of preventive medicine, and

co-ordinating the respective factors of a complete scheme ; only by thorough, constructive and intensive practice of our principles ; and only by searching and finding the hidden secrets of immunisation, shall we at last conquer this disease. (Applause.)

Sir ROBERT PHILIP : Ladies and Gentlemen,—You have already manifested your appreciation of this statesmanlike exposition—just what we expected from Sir George. I desire, in your name, to thank him for the pleasure he has given us. (Applause.)

Prof. WINSLOW (U.S.A.) : Mr. Chairman, Ladies and Gentlemen,—I think the Committee in charge is to be warmly congratulated, not only on the quality of the opening addresses, but on the remarkable way in which they have fitted together.

Prof. Calmette's address yesterday is, itself alone, sufficient to make this Congress famous in the history of medicine—the sound, scientific facts such as have always come from the Institut Pasteur, and the logic and brilliance of presentation such as always come out of Paris.

Not only that : Prof. Calmette's conclusions are not in contradiction with the policy that we are following, and are going to follow. They form the perfect basis for the programme that Sir George Newman has outlined. They give us a new view of the age-long conflict between the idea of contagion and the idea of vital resistance. They show us that for the infant and the savage tuberculosis is a communicable disease ; for the adult and civilised communities, a question of vital resistance. Just as we go to France for the theory of tuberculosis, so we come to England for the practice of tuberculosis administration. We in the United States, Sir Robert, ever since Chadwick and Leyland, have looked to England for leadership and inspiration, and we have never failed to get it.

I am in agreement with the principles laid down by Sir George Newman as to treatment, and with his optimistic view as to the future. Yet I think none of us are quite satisfied with the immediate results.

The sanatorium treatment is the central point of our battle in America. In our sanatoria, only 25 per cent. of our patients are cured ; 75 per cent. die in them, or soon after they leave. We all know the reason : we do not receive them early enough. If they entered the sanatoria when they were early cases, we would have

75 per cent. cures and only 25 per cent. deaths. It seems to me the early treatment in sanatorium treatment is the heart and soul of the problem.

I am told that things are quite different with you in England, but with us the average medical practitioner—particularly in the country districts—is not always successful in the early diagnosis of tuberculosis.

We feel, then, in America that the two things that are really most essential are :

First, the development of the dispensary service. We are trying hard to develop some sort of quantitative service. We are trying to arrive at quantitative standards, and we have come to avail ourselves of the information with which you are able to supply us. We find, in our cities where the dispensary system is at its best, we get from one to two visits per 1000 population, and from five to ten nursing visits to the home per 1000 population. We are trying to work out standards by which we can determine the adequacy of dispensary treatment.

Another thing in which we are interested is the consultation service, the provision of skilled consultants, experts in tuberculosis, who will act as consultants to the private physician. That is exerting an effect of enormous value, because we know that the average private physician needs assistance in the early diagnosis of tuberculosis.

To return to the question of sanatorium treatment: We need not be upset because our sanatoria show failures in three-fourths of the cases. We have not yet built up the machinery necessary to enable them to handle those cases. It is the old story of the bishop, who, when he was told that Christianity had failed, replied, "It has never been tried."

In conclusion, Ladies and Gentlemen, I want to say to you on behalf of an organisation that I represent—the League of Red Cross Societies—that in your fight to build up the machinery in the different countries, I believe you are to have an active, vigorous and helpful assistance from the Red Cross Societies. (Applause.) You know what is being done here in England through the gracious and multiform activities of Sir Arthur Stanley—(Hear, hear),—and I can say that all over the world the Red Cross Societies are doing splendid work. I hope you will call upon them, and I believe they will come to your aid, and give you the support and assistance that is needed for the anti-tuberculosis campaign. (Applause.)

Dr. RIST (Paris) : Mr. President, Ladies and Gentlemen,—I think the task of the physician, of the practitioner, in the fight against tuberculosis, has been admirably defined by the preceding speakers, but there is, perhaps, one point which has been left rather in the dark, and which I would like to emphasise.

The first duty of the physician is to be a diagnostician, and it has been the experience of the war that between the standards of diagnosis recognised by experts in tuberculosis and the routine methods of diagnosis of the practitioner—I mean by methods, not only the physical methods, but also the mental methods of diagnosis of tuberculosis—there is a wide discrepancy. That it should be so is to be deplored.

In all the countries which have been engaged in the war—and especially in the military medical services engaged—one has been struck by the great difference in the figures of tuberculous patients in the Army, returned by the Army medical officers, and the figures which have finally been attained in clearing stations and in specialist hospitals.

These discrepancies were so great as to create a very awkward situation during the war. Men had been returned to the base or sent back to their own country on insufficient grounds on account of an insufficiently based diagnosis, and in every army steps had to be taken to prevent that.

We must profit by this lesson of the war, and I think the opportunities which we have now to examine men, discharged soldiers who are on the pension list in our different countries, afford us another chance of observing that our routine diagnostic methods are not yet adapted to what we know about tuberculosis from the pathological point of view. Opportunities such as the research of the bacilli of the sputum, or the X-ray examination, have not yet been put in the routine practice of diagnosis. I have published in France, and also here at the National Congress on Tuberculosis in 1919, I brought forward figures from the French Army. Since then I have found the most illuminating figures published by the London County Council.

At the sitting of the Public Health Committee of the London County Council on March 10th, 1921, figures were given which enable us to compare the amount of real tuberculosis which was found in observation hospitals among patients who had been sent to those hospitals with the diagnosis of tuberculosis, and under four headings :

“ Cases accepted as tuberculous by the Ministry of Pensions but

queried by tuberculosis officers; cases accepted by the Ministry of Pensions and by tuberculosis officers as tuberculous, but passed through observation beds; civilians recommended by tuberculosis officers for diagnosis; civilian cases diagnosed by tuberculosis officers as tuberculous, but passed through diagnostic beds." The sum total of these cases is 158. Among these 158 cases, 34 were tuberculous and 124 non-tuberculous. "It will be noticed that 124 (or over 78 per cent.) of the 158 cases were reported as not suffering from tuberculosis. Of the 34 cases diagnosed as tuberculous, 10 were considered to be 'arrested' cases not requiring active treatment, only 24 (or 15 per cent.) of the 158 cases being recommended for treatment."

I think the London County Council must be congratulated for having had the courage to publish these figures. They illustrate my point so well that I do not think I need go any further. What the medical profession wants is education in the matter of tuberculosis, not merely from the point of view of the moral influence and the prophylactic influence which the profession can exert on the public—although that is important, but to my mind a secondary point. First of all the practitioner must become a diagnostician, and we must help him to become a diagnostician. The teaching of tuberculosis in our schools of medicine becomes of enormous interest. The example which has been given in this country, in Edinburgh and Wales, the example which, I think, also has been given in America, at Harvard, must be followed. I think it would be wise if this Conference should resolve that the teaching of tuberculosis, as a special matter, should be made compulsory in all schools of medicine of the civilised countries. (Applause.)

Col. BUSHNELL (U.S.A.): Mr. President, Ladies and Gentlemen,—I want to talk about one special subject, and very much in continuation of what Dr. Rist has said—the importance of diagnostic teaching in the prevention of tuberculosis.

The increase in specialism in medicine leads almost inevitably to a lessened interest in the study of physical diagnosis, especially when, as is too often the case, the physician seeks to become a specialist before he has acquired a well-rounded knowledge of general medicine. But the clients of a physician expect as a matter of course that he will be able to advise them as to disease of heart and lungs. And are they not right? Should not every physician be competent to form an opinion as to these organs so important to

life, whatever his specialty? And it is equally true that every man who has to do with general anæsthesia—and who does not?—suffers grievously in his professional reputation in the minds of the laity, and, moreover, may not always do full justice to his patient if he refers all cardio-vascular and pulmonary questions to others, and depends entirely upon his anæsthetist for the practical conduct of the anæsthesia. Every physician, therefore, as a matter of policy, if for no higher reason, should acquire and maintain a familiarity with the practice of physical diagnosis as respects heart and lungs. But in my opinion the study of physical diagnosis has also a value that is not always appreciated in preparing the student for the practice of his profession. Every successful practitioner, whatever his specialty, must acquire the faculty of appreciating minute changes in sound, in tension, in colour and the like. He must learn to remember the exact sensations yielded by an examination at one point in order that the shades of difference which may exist at the point of comparison may be detected. He must learn to fuse the impressions derived from his observations into an organic whole, so that their combination makes the correct diagnosis, and more than that, he must retain his impressions accurately, so that from day to day changes vital for the prognosis may be noted. To appreciate minute differences in the phenomena observed by the senses, an intense concentration of the attention must be learned.

The ability to concentrate, without which virtuosity can never be attained, may be acquired in the study of groups of physical signs other than those found in the specialty to which the physician proposes to devote his life. In other words, the student, while still an undergraduate, may begin that cultivation of his senses which is essential for success. But to attain proficiency in this pursuit great practice is necessary. The wonderful perspicacity of the great diagnostician is partly due to the enormous number of his observations. He has been in the position to examine great numbers of patients. The undergraduate, if forced to acquire his dexterity solely by the study of the sick, will not progress far. He is more or less dependent upon chance in coming into contact with the class of patients needed, and when he finds them he is restricted by external conditions (considerations of the patients' welfare, which requires brevity, the restlessness of the patients, his inability to assume the necessary posture and the like) from taking full advantage of the opportunity.

To acquire proficiency in physical diagnosis in a short time

demands the use of the healthy subject, or at least one with chronic disease not too far advanced. The study of the healthy chest has been too much neglected. It affords an opportunity to study minute differences in the sounds of percussion and auscultation and the like fully as good as that offered in disease. Having acquired some proficiency in auscultation and percussion, the student should then pass to the study of morbid phenomena as exemplified by patients who can be examined thoroughly and repeatedly.

The foregoing too brief discussion, if the points have been correctly taken, leads to the conclusion that the undergraduate student should be taught the physical diagnosis of the diseases of the lungs and heart, not only for its employment in practice, but also as a means of the education of his faculties of observation, now largely neglected at the expense of overtaxing his memory. As has been remarked, he should begin on the healthy chest and continue his investigations by the study of cases of chronic disease. There is an unfailing supply of chronic cases in the wards devoted to pulmonary tuberculosis. The obtaining of a correct topical diagnosis in chronic pulmonary tuberculosis is more difficult than the diagnosis of more acute diseases. Anyone who can make such a diagnosis in chronic pulmonary tuberculosis will find little difficulty in mastering the phenomena of pneumonia, for example. It seems, then, desirable that the student should be taught the diagnosis of chronic pulmonary tuberculosis at an early stage in his career for his own sake, but is it not also desirable that this should be done for the sake of the tuberculosis campaign? No full success in this can be attained until the family practitioner is capable of recognising the disease in its early stages, and is sufficiently interested in it to undertake the education of his clients in its prophylaxis.

It hardly needs to be pointed out that if pulmonary tuberculosis has been taught to the undergraduate so thoroughly that he has come to know the fascination of solving its difficult diagnostic problems, he will retain an interest in the disease during his later professional life. There could be no better method of popularising the study of tuberculosis in the medical profession.

The experience acquired in the army of the United States throws a light upon the study of physical diagnosis, to which it may be well to direct attention.

Examination of the troops for tuberculosis being in progress, difficulty was experienced in finding a sufficient number of examiners. Resort was had to a class of physicians who were willing to accept

temporary employment for the purpose of performing these examinations. Not all of these physicians, when tested in practice, proved to have the necessary technical ability. It became necessary to determine their proficiency by means of practical tests before accepting them for service in remote portions of the country. This procedure had the desired result, but it also appeared, quite unexpectedly, that the examinations intended for a test came at once into high favour as a course of instruction. This fact being recognised, steps were immediately taken by those in authority to provide similar courses at all of the medical officers' training camps, and at some of the hospitals. In all over 2000 medical officers received this instruction, the majority of them taking the course as volunteers. The success of this work was undoubtedly due to two factors: first, to the presentation of interesting facts in the acoustics of the normal chest, which were new to the pupils; and second, to the highly practical character of the instruction. The pupils, after care had been taken to provide them with properly fitting stethoscopes, were divided into groups of four men each. The entire time of the instructor during the lesson, an hour or an hour and a half in length, was devoted to this group. The work of each of its members was followed until either the individual was found to have learned to interpret physical signs correctly, or (what was rarely the case) had shown himself incapable of doing so.

Now, a mature practitioner of medicine can undoubtedly become proficient in diagnosis if he is willing to devote his attention to it. But the unsuspected talent which was developed during these courses shows that many who are qualified to succeed will not take the subject up without the stimulus of direct personal instruction. These considerations apply with even more force to the undergraduate. The principles that classes in physical diagnosis should be small, and that the instructor should come into the closest touch with his pupils, are not new, but the experience in America during the war has furnished so strong a corroboration of their truth that the fact is, perhaps, worthy of being recorded here.

Dr. ANTONIO ESPINA Y CAPO (Spain): Mr. President, Ladies and Gentlemen,—The work of the medical profession may be divided into the following forms of activity and intervention, viz. investigation work, clinical work in all its aspects, propaganda work, social work.

(1) *Investigation work* ought to include the following: laboratory,

histology, investigation in the direction of prophylaxis by immunisation, verification of international discoveries connected with serums and vaccines.

(2) *Clinical work in all its aspects, medical and surgical*, including therapeutical work; not experimental, but clinical verification of laboratory results; autopsies.

(3) *Propaganda work*, including anti-tuberculosis education with scientific basis; lectures, lantern slides, school and maternal anti-tuberculosis instruction, question of compulsory notification, comparison and examination of international statistics.

(4) *Social work*, including medical participation in drawing up international anti-tuberculosis laws; study of life insurance, and the possibility of unification of its conditions in all countries; study of dispensaries, sanatoriums, and hospital accommodation for the tuberculous; prophylaxis regarding germ-carriers; study of the married state, with reference to the prophylaxis of tuberculosis; international form of notification, deciding its voluntary or compulsory nature; sanitation in the private house, workshop, school, barracks, and in general in every place inhabited individually or collectively by persons or animals as possible carriers and distributors of contagion.

Prof. GASK (Great Britain): Mr. President,—I did not come with a speech. A few incautious remarks that I made before the meeting to Sir Humphry Rolleston have brought me here. The discussion on the rôle of the medical profession in the prevention of tuberculosis interested and attracted me, and it is only as a medical man that I make the few remarks that I have to make.

In my opinion, the medical profession, as a whole, have failed in their duties to the nation, and are still failing, in the sense that we are not insisting on the proper preventive methods of treatment of tuberculosis. We know—I think we know; I am speaking as a surgeon without a full understanding of all the problems which you are discussing—that tuberculosis is a preventable disease. We know how it is to be prevented, but we are not insisting, as doctors, in season and out of season, that this should be done.

As far as I can see, the problems are administrative largely. The scientific problem is pretty clear. We have heard from Sir George Newman and others that very much has been done in the past, and all credit is due to those who have done it, but it appears

to be clear that ten times as much could be done, and should be done, if we, as doctors, insisted in no uncertain terms that it should be done. (Hear, hear.)

Dr. JAQUEROD (Switzerland) : Je voudrais insister ici sur un point extrêmement important de la prophylaxie antituberculeuse au sujet duquel on a déjà beaucoup parlé, mais sans être encore arrivé à un résultat pratique suffisant.

Il s'agit de l'obligation pour tout tuberculeux pulmonaire de cracher exclusivement dans un crachoir de poche.

Dans les stations de cure pour tuberculose, dans les sanatoriums, les malades sont obligés par des règlements extrêmement sévères de se conformer à cette règle. Ils sont surveillés strictement à ce sujet, non seulement par les médecins, mais par le personnel du sanatorium, par la population tout entière. Et en fait les tuberculeux sont moins dangereux pour les personnes saines dans les sanatoriums et dans les stations de cure que partout ailleurs.

Depuis quelques années je me livre à une enquête minutieuse et très délicate afin de savoir exactement ce qui en est de l'exécution de cette règle avant l'entrée au sanatorium ou après le départ. Les résultats de cette enquête sont des moins édifiants. La très grande majorité des malades n'ont jamais vu un crachoir avant d'arriver au sanatorium et, fait plus triste encore, une grande proportion de ceux qui partent ne se servent plus de leur crachoir, alors même qu'ils continuent à avoir de l'expectoration bacillifère.

Lorsqu'on demande au malade pourquoi il agit ainsi, alors qu'il connaît fort bien toute l'importance de la question, il donne deux raisons :—

La première c'est qu'au sanatorium et dans la station de cure, il est strictement défendu par les lois de cracher ailleurs que dans un crachoir, tandis que hors de la station il n'existe plus de règle. Le tuberculeux a le droit d'agir comme les autres.

La deuxième raison est que, lorsqu'il veut se servir de son crachoir dans un train, dans un tram, dans un hôtel, on le regarde comme un pestiféré ; on le fuit ou on exige son départ.

Pour remédier à ces inconvénients il faut, d'une part, faire dans tous les pays des lois qui enlèvent aux tuberculeux le droit qu'ils possèdent aujourd'hui, de cracher où il leur plaît, qui les oblige à porter constamment sur eux un crachoir de poche et à s'en servir ; d'autre part, pour qu'on ne puisse pas reconnaître le tuberculeux des personnes saines, il faut que toute la population saine prenne l'initiative sans y être obligée légalement, de porter un crachoir de

poche et de s'en servir partout et toujours quand le besoin de cracher se fait sentir.

Les médecins et les membres des associations antituberculeuses doivent prêcher d'exemple et prendre l'engagement formel de se servir de crachoirs de poche (dont il existe des modèles métalliques élégants à peine plus gros qu'une montre).

Je demande que dans les prochains congrès antituberculeux il soit remis à chaque membre en même temps que l'insigne du congrès un crachoir de poche au moyen duquel il sera fait partout, y compris dans les grands réceptions et galas, une vigoureuse propagande en faveur de cet instrument.

La presse du monde entier pourra également rendre de grands services en parlant de cette innovation et de son importance capitale pour la santé publique. (Applause.)

Prof. FRANCIS HARBITZ (Norway): Mr. Chairman, Ladies and Gentlemen,—The physicians should always take the leading part in the campaign against tuberculosis.

(1) Physicians should establish and further develop the scientific base on which the tuberculosis work rests. It is the duty of doctors to promote this work in every way; they ought to find new lines and point out new points of attack. In connection with this work, doctors should take care to prepare, by correct methods, statistics of the material acquired, in order to obtain the best possible survey of the diffusion of tuberculosis in different countries, at different times and at different ages of life, concerning the mortality as well as the morbidity of tuberculosis.

(2) Physicians should take the lead in the work for the diffusion of information among medical men themselves as well as among the population at large. This information ought to be spread by periodicals and leaflets, which, in a simple way, should deal with the cause, diffusion and prevention of tuberculosis. Lectures ought to be given on these subjects, especially by physicians, and preferably in connection with travelling tuberculosis museums, etc.

(3) Physicians should see that the preparation of proposals for laws for the campaign against tuberculosis is constantly in accordance with our knowledge of the cause of tuberculosis and contains the measures necessary for prevention of the diffusion of tuberculosis. These proposals physicians should try to advance through the central authorities attached to the governments, so that they may be carried in the national assemblies as quickly as possible.

As principal points of these proposals may be mentioned compulsory entrance and stay at hospitals or tuberculosis sanatoriums of patients with contagious forms of tuberculosis, who cannot be nursed at home with any good results, or of patients who do not follow the prescriptions given them in order to try to prevent the diffusion of the disease. Special care ought to be taken to protect children, as according to the conceptions of to-day the infection in childhood is of the greatest importance. Consequently attention ought to be given to possible presence of tuberculosis in servants and teachers. Gratis treatment ought to be given to all tuberculous patients who cannot afford to pay for their stay at hospitals or at sanatoriums.

(4) Physicians should work for the establishment of tuberculosis dispensaries, which certainly are one of the most effective means in the campaign against tuberculosis. They should trace new cases, take care to send the patients to small tuberculosis hospitals, control the other members of the family, especially all the children, who, if in danger of being infected, ought to be sent to homes for children threatened with tuberculosis. These dispensaries ought to be established in every town and in every district, and must be managed by physicians.

(5) Further, it is the duty of doctors during their treatment of each tuberculous patient, and especially of consumptive invalids, to order and to control the exact carrying out of the prophylactic measures for preventing the diffusion of infection, and especially to order strict cleanliness as regards expectoration. Physicians ought especially to observe old consumptive patients with chronic tuberculosis who, having had the disease for years, feel well themselves, but are spreading the contagion about them on all sides.

(6) Physicians ought to partake in the work for improving hygiene as a whole, such as better housing, better food, cleanliness, etc., which all increase the power of resistance, notably against tuberculous diseases.

(7) Finally, physicians should try, each in his practice, as soon as possible to make the diagnosis of "early tuberculosis," especially in the lungs. It is therefore necessary that all doctors should know the fundamental rules for the dietetic-hygienic treatment of tuberculosis and effective therapeutics of tuberculosis throughout its entire course. (Applause.)

Dr. CHARLES L. MINOR (U.S.A.): Mr. Chairman, Ladies and Gentlemen,—In the last analysis the problem of the prevention of tuberculosis is, I am convinced, a sociological even more than a

medical one, a problem of better housing, better working conditions, better food, a problem of educating a more intelligent people. Important as is the part played by the infecting organism, it is undeniable that in civilised men who have been rendered more resistant by centuries of exposure to the germ, the essential factor is not so much the strength of the infecting organism as the resistance of the invaded body, although we tend to neglect the former and over-emphasise the latter.

However, even though it be a social problem demanding the combined activities of the social worker, the sanitary engineer, the law-maker, the educator and the philanthropist—all these will be helpless without the co-operation, the guidance and the advice of intelligent physicians, without whom no progress can be made—hence the importance of the subject before us to-day. The doctor's relation to the tuberculosis problem can be considered from five points of view :

- (1) As an investigator of the scientific problems of the disease.
- (2) As a teacher of the public.
- (3) As a discoverer of the disease.
- (4) As a guide and teacher of the sick person.
- (5) As a moulder of proper legislation.

(1) The question of the scientific study of the disease cannot be broached here ; I would only say that the medical world, despite considerable efforts, is backward in what it should be doing in this line, and that many of the so-called scientific discoveries of the past twenty years must have to-day proven to be disappointments.

(2) In his all-important *rôle* as a teacher of the public, the physician will be useless unless in his education he has paid special attention to the disease, and to-day the doctor who has not taken time or had the opportunity to master the essential points of this all-important medical problem knows little more than does the general public, and his misleading teachings, which are much worse than none, are largely responsible for the foolish and unjustified phthisiphobia from which the public is suffering to-day, while his ignorance of the diagnosis of the disease, save in its most advanced forms, sends away many trusting patients, soothed into a false sense of security by a mistaken diagnosis, or encouraged to neglect their trouble, owing to an erroneous prognosis at a time when an early diagnosis and a correct prognosis could almost assure a cure.

Most of my hearers have had ample opportunity to know that what I say is true, and need not be told that too many of our

profession are not informed as they should be as regards tuberculosis, and that there is a crying need that our medical schools should graduate, not, indeed, finished specialists, but students who have been taught thoroughly the fundamental facts of tuberculosis, whose prevalence and mortality give it an unimpeachable claim to special consideration in the medical curriculum. To-day, as far as I know, only in the medical school at Edinburgh, through the activities of our President, is there such a course. When Edinburgh's example is followed universally we can expect the profession as a whole to teach the public, as they alone can, the truth about this disease, and such a knowledge of the truth is essential if its incidence is to be lessened and its mortality decreased.

(3) As a diagnostician of the disease in its beginnings, the physician can be of inestimable value to the public, since its early discovery is an important factor in its prevention. If he is to do so, however, he must have learned, as too many doctors do not, to take histories searchingly and well, to observe facts closely and carefully, and to draw from this history and those facts clear and rational conclusions. When our profession are universally so trained, the early diagnosis of the disease will not need to be made by the specialist but will be fully within the reach of every intelligent practitioner, and the patient will not, as is now too often the case, have to go from doctor to doctor seeking a diagnosis and losing precious time, but will have his trouble discovered at a time when he can be rendered innocuous to the public, and when restoration to health should be easily possible.

(4) As a guide and teacher of the sick person, the doctor will be of inestimable value if he is willing first to apply the latest verified discoveries of science to the treatment of the disease, and, equally important, if he is willing to regard each patient not merely as a "case" but as a human being, whose body is as deeply influenced by the state of his mind as is the performance of an automobile affected by the condition of its driver, and if he will give his patient's Psyche the same study and the same interest which he gives to the education of his own child, and if he will put into him a hopefulness, which the doctor himself, however, must feel if he is to communicate.

(5) As a moulder of legislation the doctor's rôle is paramount; if he be the master of his subject he can be the wise guide, with whose aid the legislator can frame those laws which are needed to create proper conditions for the prevention and eradication of disease. At the same time let it be remembered that a law cannot safely have

any but the fully accepted facts of science as its basis, and that we must not allow our enthusiasm for new and only partially worked-out truth, not yet entirely proven, to tempt us to use this as the foundation of new law—a mistake that has been made too often in the past, and which has naturally caused legislators to be chary of accepting our advice.

Finally, Gentlemen, I believe that if our profession can follow the lines here suggested, they can play a great and predominant part in guiding the campaign which the world to-day is making to wipe out this scourge, and will earn thereby the respect and gratitude of humanity. (Applause.)

Prof. JONATHAN MEAKINS (representing Great Britain and Canada) : Mr. President, Ladies and Gentlemen,—I have heard, with great delight and gratification, Sir Humphry Rolleston's account of the *rôle* of the medical profession in the prevention of tuberculosis, and I would like to make a plea for one man who is the rock foundation of the medical profession, namely the general practitioner. He is the guide, counsellor and friend of the community at large, and on his head and in his hands rests the major work in the combatment of tuberculosis, to my mind, and that is propaganda and education of the people.

Sir George Newman's able and statesmanlike address on the plans of the Government was wonderful, but I would remind him of the old proverb : "You may take a horse to water but you may not force him to drink." The success of the efforts of the medical profession in regard to this question will be based upon two broad principles : First, as has been already pointed out, on diagnosis and early recognition of disease, whether by signs or by symptoms ; second, and not less important to my mind, on the recognition by the medical profession of one or two fundamental biological facts, which I hope in ten years' time may be placed on a bio-chemical foundation.

The point which I wish to elaborate this morning, for a minute or so, is this : It has been said that some 85 to 90 per cent. of the civilised population of the world gave a positive tuberculosis reaction. That is not an index, to my mind, of immunity ; it is an index of sensitivity. (Hear, hear.)

A second question is : Is this sensitivity not in particular to tuberculosis, but a biological fact in general ? May it be inherited ? I believe it may. We have instances of it which would take me too long to recount this morning.

The next and most important question is this: How may sensitivity, or how may the sensitiveness to tuberculosis or any other infection, be increased or become operative in a deleterious manner? The questions may be shortly answered as follows: First, by the exposure of a sensitised individual to a sufficient, but individually variable, massive infection or sensitising agent. That is, probably no two individuals in this world are equally sensitive to the same dose of tubercle bacilli, but each one has his own index. The point, I believe, was brought out very ably yesterday, although unfortunately I could not be present to hear it.

In the second place, sensitiveness to tuberculosis, as to other diseases, may be increased by such agents as fatigue, whether in the workshop, the home or the school. This fatigue may be either physical or nervous. This involves questions of poor nutrition, poor hygiene, and, generally, poor ventilation. Not that those factors in themselves, probably, are so operative as is their influence on the host or on the person who is, unfortunately, going to suffer.

A third point, which is of tremendous importance, is the lack of healthy physical recreation on the part of the community. Particularly is this evident at the present time, when the hours of labour are shorter. Are we giving workers facilities to occupy the other eight hours? Eight hours' work, eight hours' sleep, and the cinema fills the remaining eight. (Laughter.)

Now, these few guiding principles I would like the medical profession to follow in their propaganda: (1) The discouragement of tuberculous individuals having too many children. (2) The protection of all children from liability to infection, whether by food or by air, or from any other source; and (3)—and to my mind far and away the most important—the unceasing endeavour to improve the economic and social conditions of all classes of society. (Applause.)

M. le Prof. RÉNON (Paris): Il est nécessaire de prêter la plus grande attention aux paroles de notre collègue M. Rist.

A l'heure où le médecin est la clef de voûte de la lutte contre la tuberculose, il est indispensable qu'il connaisse le diagnostic de la maladie, et il le connaît très mal dans tous les pays. Sans doute, des efforts considérables ont été faits pour l'éducation des médecins. Dans son service d'hôpital d'Edimbourg, Sir Robert Philip s'est attaché d'une manière très particulière à cette instruction. En France, où notre enseignement clinique très libéral met en contact dès le début et pendant toutes leurs études les étudiants et les malades, où des cours complémentaires institués sans ou avec l'aide

de la Commission Rockefeller—que nous ne saurions trop remercier—sont faits par séries pour instruire le mieux possible les médecins dans la connaissance de la tuberculose, nous sommes fâcheusement surpris de voir combien cette connaissance existe peu. Nous le voyons dans les diagnostics qui nous sont soumis dans les hôpitaux, les sanatoria et les dispensaires, je le vois aussi dans les examens que je fais passer aux étudiants comme professeur de pathologie médicale à la Faculté de médecine de Paris.

Pour faire une lutte antituberculeuse sérieuse, il faut que les médecins connaissent bien la maladie, et, avec mon collègue, le Dr. Irimescu, de Roumanie, je proposerai cet après-midi à la Conférence un voeu demandant que, dans les Écoles de médecine de tous les États, on organise un enseignement spécial de la tuberculose pour apprendre aux médecins le diagnostic de la maladie et les moyens de la combattre. (Applause.)

Dr. S. IRIMESCU (Roumania) : La tuberculose se présente pour son étude sous deux aspects : aspect social qui est prévalent, aspect clinique avec ses manifestations diverses. Pour bien combattre un ennemi, il faut comme première condition le bien connaître. C'est de la tactique élémentaire et comme dans toute stratégie, la victoire ne peut être obtenue qu'à ce prix. Encercler l'ennemi redoutable qui est la tuberculose de deux côtés : côté social par la connaissance des conditions économiques qui créent et entretiennent le milieu propice à son développement et à son expansion, côté clinique pour pouvoir le dépister à temps et le découvrir sous les masques divers qu'il sait prendre, voilà ce qu'il faut pour réduire cet ennemi à merci et s'en rendre maître.

Il est bien entendu que le médecin de par ses connaissances générales est à même d'être un bien stratège dans la lutte antituberculeuse ; s'il voulait bien s'appliquer à cette lutte, la victoire serait sûrement au bout de ses efforts. Mais tout de même, comme la médecine embrasse un champ très vaste, il faudrait, ne serait-ce, pour concentrer ses réflexions et coordonner les connaissances nécessaires pour la lutte antituberculeuse, que le médecin qui s'y consacre ait une éducation spéciale faite dans ce sens.

Pendant sa scolarité, l'étudiant en médecine passe à côté de la tuberculose, sous prétexte que le programme très chargé, trop chargé des études médicales ne permet pas de s'arrêter à ce chapitre. Tout au plus, de temps en temps, un maître bienveillant, professeur de clinique ou professeur d'hygiène glisse quelques mots en passant sur un sujet qui mériterait à lui seul de longs développements.

La nonchalance avec laquelle on traite un des chapitres les plus importants de la pathologie humaine—la tuberculose est par le fait la plus étendue et la plus meurtrière des maladies épidémiques (les statistiques évidentient à satiété cette constatation)—est tout à fait coupable et c'est presque un paradoxe pédagogique du programme des études médicales. On s'en est bien rendu compte dans bien des pays. L'Angleterre qui a eu la bonne chance de voir se consacrer à l'étude sociale et clinique de la tuberculose tant d'hommes éminents a mis à leur juste place—the right men in the right places—ces hommes éminents et elle possède pour le moment deux chaires de phthisiologie, celle qu'a rendue célèbre par sa compétence universellement reconnue et par son dévouement toujours jeune et inlassable le professeur Sir Robert Philip et celle qu'occupe le professeur Lyle Cummins que des travaux remarquables ont désigné pour cette haute charge. Les États-Unis, la Belgique, etc., ont une chaire de phthisiologie depuis longtemps déjà. Partout la nécessité pédagogique de cette chaire s'impose. La France qui dans ces dernières années a montré tant de zèle actif pour organiser la lutte antituberculeuse ne saurait tarder de créer à son tour une chaire de phthisiologie pour laquelle il n'y aurait que l'embarras du choix parmi tant de maîtres illustres, dont les nous sont sur toutes les lèvres.

L'étudiant auquel on montrerait l'intérêt qui s'attache à l'étude de la tuberculose—et c'est une maladie que seulement ceux qui ne la connaissent pas croient banale et qui par contre est la moins banale des maladies parce que, comme elle peut atteindre tous les organes, elle met en jeu toutes les possibilités de réaction de l'organisme et cette lutte qui présente des côtés biologiques et cliniques du plus haut intérêt jette des lueurs nouvelles sur tant de chapitres de pathologie générale—l'étudiant ne saurait s'en désintéresser et, sa curiosité une fois mise en éveil, les cadres pour le recrutement des futurs spécialistes seraient tout formés. Un stage obligatoire dans les sanatoriums et les dispensaires—et ce serait un motif de plus pour stimuler le zèle trop souvent lent et torpide de l'officialité pour la création et l'augmentation du nombre de ces institutions—complèterait l'éducation de l'étudiant qui même sans se spécialiser plus tard, se rendrait ainsi compte par lui-même des possibilités et des modalités nouvelles de l'assistance des tuberculeux.

Le corps médical tout entier—les nouvelles générations médicales du moins—formé et éduqué dans ce sens s'intéresserait ainsi d'une façon directe et en connaissance de cause à la lutte antituberculeuse. L'Angleterre qui en tant de choses nous est d'un bon exemple, a 371 médecins spécialisés dans la lutte anti-tuberculeuse. Elle a pu

les avoir en les formant par les études théoriques professées dans les chaires de phtisiologie et par l'école pratique des dispensaires répandus à profusion dans ce pays qui ne lésine pas quand il s'agit de faire aboutir des programmes sanitaires.

Pour que "le rôle du médecin pour la prévention de la tuberculose," qui est un des thèmes des discussions de cette conférence soit bien rempli, il faut que les acteurs—qui sont dans l'espèce les médecins—le connaissent et pour ça il faut qu'ils l'apprennent.

Je me permets de proposer que l'un des vœux de cette conférence soit que l'éducation médicale soit complétée dans le sens de l'éducation antituberculeuse. Ça serait la juste consécration d'une nécessité évidente sociale, clinique et pédagogique. (Applause.)

Dr. ERIC PRITCHARD (Great Britain) : Mr. Chairman, Ladies and Gentlemen,—Since it is practically impossible to secure a tubercle-free environment for our children, it is perfectly obvious that the energies of the medical profession will be most fruitfully directed towards obtaining a tubercle-immune population. It does not seem to me to be unreasonable to expect to be able to abolish dangers from bovine tuberculosis, so that the real danger lies in serious infection with the human disease before any degree of immunity has been acquired. The chief danger lies in the infection of the infant or young child by the mother, father, or other individual living in the same house. When there is an open case of tuberculosis in close propinquity with an infant I believe that not 1 per cent. escape tuberculisation ; whether this results in definite tuberculous lesions or in the attainment of relative immunity depends on a number of conditions.

The plea which I wish to make is that it should be part of the duties of the 2000 welfare centres which now exist in this country, and supervise the health of some 600,000 children annually, to make it a part of their routine duties to inquire very carefully into the case of suspects, contacts and candidates for tuberculosis, and refer suitable cases for special treatment.

As the result of a small experiment which I have been carrying on at my own centre in Marylebone, I believe it is quite practical to render infants immune to tuberculosis, even though they live under the most dangerous conditions of infections, provided the treatment begins early enough before damage has been inflicted. The following is a very brief summary of the conclusions to which my experiences point :

(1) Practically all infants of mothers suffering from open tuberculosis and living under their care become tuberculised whether they are breast-fed or not; they sometimes become infected before the end of the puerperium.

(2) There is nearly equal danger when the father or other inmate of the house also suffers from open tuberculosis, or is a "carrier" of the disease.

(3) Whether the result of such tuberculisation is prophylactic and immunising, or whether it actually leads to true tuberculosis, depends on—

(a) The dosage.

(b) The natural resistance of the baby.

(c) The degree of passive immunity offered by breast-feeding.

(d) The presence or absence of any *locus minoris resistentiæ*, such as an existing bronchitis, enteritis, or adenitis.

(4) The diagnosis of tuberculisation or of an actual tuberculous lesion can only be made in infants by—

(a) The diagnostic injection of a minimal dose ($\frac{1}{8000}$ mgrm.) of Koch's old tuberculin, and

(b) Observations of the temperature chart.

The appearance, weight, chart and general health of even seriously infected infants is most misleading. Post-mortems often show massive tuberculous growths, although the health and condition of the infant has remained apparently good until a week or two before death.

(5) When the diagnosis of definite T.B. infection has been made, or when there is evidence of tuberculisation, the treatment I adopt is as follows:

Once a week after the initial diagnostic inoculation I give a weekly injection of Koch's old tuberculin or "detoxicated" tuberculin, increasing the dose on each occasion by 50 per cent. until 1 mgrm. can be tolerated without serious reaction. The course of treatment lasts about five months.

During the last ten years I have treated in all about thirty cases. It is difficult to secure the regular attendance of the mothers; their babies appear so well that they think treatment is unnecessary. The oldest child with whom I have kept in touch is seven years. I have no record of any death, and I have had no accidents or complications to record; the method is so simple, practical and cheap that I intend in the future to treat all suspects attending my infant consultations

by a regular course of these prophylactic inoculations if I can induce the mothers to bring the infants regularly. (Applause.)

Dr. CAWADIAS (Greece) : Pour rendre le rôle des médecins plus important dans la lutte antituberculeuse, trois conditions sont nécessaires :

1. Modifier l'organisation générale de l'hygiène publique, accorder le rôle prépondérant aux médecins et non pas aux politiciens et aux fonctionnaires d'état.

2. Rattacher dans l'enseignement médical l'hygiène à toutes les branches médicales et en particulier à la clinique et ne pas faire de l'hygiène une branche isolée indépendante rattachée au laboratoire de microbiologie.

3. Créer un enseignement spécial dans les facultés pour la tuberculose.

Je désire développer en quelques mots ces trois propositions.

1.

On accorde une place trop considérable dans la direction et l'application de l'hygiène à des non-médecins, à des hommes politiques et fonctionnaires gouvernementaux. Certes, dans l'organisation de l'hygiène publique nous ne pouvons pas nous passer des fonctionnaires non-médecins, mais leur rôle doit nécessairement être secondaire, ce sera un rôle d'application fidèle de directions médicales. Il est contraire à la science et la logique de laisser à des non-médecins de l'initiative. Dans la guerre pourrions-nous limiter les officiers de l'armée à un rôle de consultants pour laisser à des avocats ou autres fonctionnaires la direction des manœuvres militaires ? Et pourtant, c'est ce qui se fait en hygiène où les médecins sont réduits au rôle de consultants, de théoriciens, qu'on écoute autour d'une table verte d'une oreille fort distraite. Et pourtant, quel autre est plus capable de montrer comment on prévient les maladies que celui qui a consacré sa vie à l'étude des maladies ?

Prenons le point spécial de la tuberculose. Comment un non-médecin pourra-t-il se rendre compte du rôle de la première infection vaccinnante, de l'importance de la quantité de bacilles dans la réinfection, de la physiologie pathologique, des processus ulcéreux, si magistralement exposée hier par le Prof. Calmette ? Comment pourra-t-il suivre les progrès de notre science, si rapides, et où

trouvera-t-il la capacité de juger l'importance de nombreux mémoires qui se publient tous les jours sur cette question ? Or, je ne vois pas comment sans cette possibilité, il pourrait diriger la lutte anti-tuberculeuse.

C'est pour cela que nous entendons tous les jours dans la bouche d'hygiénistes, des Parlements, ou des ministères, "la lutte anti-tuberculeuse c'est la lutte contre l'alcoolisme," "la lutte anti-tuberculeuse c'est l'assainissement de l'habitation," et autres phrases creuses dénotant beaucoup de bonne volonté, mais une absence complète de toute notion scientifique.

Il paraît presque puéril de discuter sur cette question. L'hygiène est avec la thérapeutique le couronnement de la médecine et la médecine est une science difficile qu'un parlementaire, un fonctionnaire ou un journaliste ne peuvent pas apprendre en quelques conversations. Le rôle de prévention des maladies ainsi que celui de guérison, en d'autres mots, le rôle d'hygiéniste et de thérapeute est un rôle exclusivement médical.

Qu'on ne nous dise pas que l'homme de science est un penseur, et que l'hygiène demande des hommes d'action. On commet une grave erreur à propos de la distinction entre la pensée et l'action. On confond le penseur avec le rêveur, l'agité avec l'homme d'action. La véritable pensée est celle qui se transforme en acte, et l'action efficace est celle qui a pour substance l'idée. Les médecins—la guerre nous l'a montré—ont des qualités d'homme d'action aussi bien que ceux que l'opinion publique affuble de ce titre. Il y a dans notre pensée scientifique, de l'action et nos idées sont des idées forces.

Ainsi donc, en matière d'hygiène en général et plus spécialement, en ce qui concerne la lutte anti-tuberculeuse, le rôle prépondérant doit être donné aux médecins. Bien entendu, par médecin, nous n'entendons pas simplement celui qui a un diplôme médical et à ce point de vue nous trouvons malheureusement dans les parlements et les ministères des médecins aussi ignorants en hygiène que des avocats. Mais les médecins vraiment dignes de ce nom, ceux qui ont consacré leur vie à l'étude des maladies humaines sont les seuls qui puissent diriger l'hygiène dans un pays. Ceux qui sans être médecins entrent en contact avec l'organisation de l'hygiène, qu'ils soient ministres de l'hygiène, directeurs de différents services de santé, ou fonctionnaires de la police, ne doivent agir que conformément aux directions des médecins éclairés. En agissant ainsi ils augmenteront leur utilité, que je suis d'ailleurs loin de contester, tout en voulant régler leur mode d'action.

2.

La place de l'hygiène dans l'enseignement médical n'est pas celle qu'elle devrait être.

D'une manière assez curieuse, l'hygiène, c'est à dire la médecine préventive qui, au temps d'Hippocrate constituait presque toute la médecine, est devenue au siècle dernier, une branche spéciale de la Médecine rattachée au laboratoire et en particulier, à la microbiologie.

Or, rattacher l'hygiène à la microbiologie est une erreur aussi considérable que celle qui consisterait à rattacher la thérapeutique à la médecine expérimentale sous prétexte que cette branche a contribué en grande partie au progrès du traitement des maladies.

En réalité, hygiène et thérapeutique, constituent le couronnement de notre science et leur étude doit être rattachée également à toutes les branches de la médecine et en particulier à la clinique. Le professeur d'hygiène doit être avant tout un clinicien, car la condition indispensable pour enseigner comment on prévient les maladies est de connaître ces maladies.

D'un autre côté, ceux qui enseignent la clinique à la faculté ou à l'hôpital, doivent, dans leur enseignement, faire une large part à l'hygiène. Il ne suffit pas de montrer aux étudiants comment on diagnostique et comment on traite un tuberculeux, il faudra aussi leur montrer comment ils empêcheront que ce tuberculeux ne propage sa maladie.

Délivrons l'hygiène des cages à cochons d'inde. Ouvrons-lui les larges horizons de la clinique.

L'esprit clinique dans l'enseignement universitaire de l'hygiène, les préoccupations d'hygiéniste dans l'enseignement de la clinique, voilà la formule, grâce à laquelle nous arriverons à ce que l'hygiène ne soit plus une occupation spéciale de quelques hommes de laboratoire, mais un but général de tout médecin. Et le jour où nous serons arrivés à cela, la lutte anti-tuberculeuse prendra un nouvel essor.

3.

Reste enfin un troisième point, l'enseignement spécial de la tuberculose.

La tuberculose est actuellement la maladie contre laquelle nous avons le plus à lutter, aussi bien dans notre vie quotidienne de praticien que dans la vie sociale. Elle arrache à la vie tous les ans des millions d'existences, elle frappe les jeunes et les vieux, les riches et les pauvres. Elle soulève les problèmes les plus poignants de préservation et de traitement,

Or, il est nécessaire que l'étudiant soit mis le plus tôt possible en contact avec l'ensemble du problème tuberculeux. Il doit apprendre par des maîtres spécialisés le diagnostic tellement difficile, le traitement si délicat à conduire et surtout la prophylaxie d'où dépend en grande partie, l'avenir de notre race. Mais tout cela, exige un enseignement *concentré* ; il est inadmissible que le fléau le plus grand de l'humanité soit montré aux étudiants "en passant" dans une clinique générale entre une dyspepsie et une angine. Et la prophylaxie anti-tuberculeuse perd son intérêt, enseignée comme un chapitre du cours théorique d'hygiène. Il faut que l'étudiant voie *toute* la tuberculose dans son ensemble, et la chaire spéciale de tuberculose dirigée par un savant qui aura consacré sa vie à l'étude de cette maladie, est indispensable pour rendre les médecins plus aptes à lutter contre le fléau. L'exemple d'Edimbourg et des universités Américaines doit être suivi par les autres universités.

S'il est vrai que la vie digne d'être vécue est celle qui se surpasse, de même la médecine supérieure est celle qui au delà de la pratique individuelle quotidienne regarde la société, l'humanité.

Le médecin de l'avenir sera surtout un préventeur.

Hygiene in the old times—in the times of Hippocrates—was in the hands of clinical men, of all medicine men. Medicine was a science whose great object was to prevent and to cure disease.

Hygiene has become curiously enough in modern times a separate branch of medicine, a branch attached in some countries, especially in Germany, to bacteriology.

This conception is illogical: that in modern times the most important part of ætiology of diseases—the bacteriology—has given us the means to prevent them and has reformed preventive medicine; there is no doubt about that. But for that, to attach hygiene to bacteriology and remove it far from the other branches of medicine is as illogical as to separate therapeutics from the clinic and to attach it to experimental pharmacology, putting forward as an argument that this branch has so much contributed to the progress of the cure of diseases. Hygiene as well as therapeutics are the highest branches of medical science; their bases are not only bacteriology or experimental pharmacology, but all the branches of medical knowledge, and especially the clinical branches—that is, the study of disease; and it seems to me curious enough that the science of prevention of disease is not in the hands of clinicians—that is, of those who study disease as it appears in human beings.

That conception of hygiene also must be changed. Hygiene must return to the hands of clinicians and clinicians must take foremost interest in hygiene. Hygiene must not be the special occupation of a group of bacteriologically-educated physicians, but a general goal of all physicians, especially the clinicians. Let us free hygiene from the guinea-pigs' cages, and let it breathe the large air of clinical medicine.

As a member of the society, of the town, of the country, the physician will point out the measures to take against the extension of the scourge, he will organise the dispensaries, the sanatoria, the hospitals for consumptives, the protection of the children from infection.

All that he will do if he is thoroughly educated in the question of preventive medicine.

Our President, Sir Robert Philip, urged us at last year's Conference to promote the special teaching of students in tuberculosis. I agree wholly with this opinion. Tuberculosis is the most important medical problem of our times, the most terrible disease, the disease that tears from life young and old, happy and unhappy, rich and poor.

To realise that we must reform medical studies; the clinical teachers must in their every-day lectures at the bedside explain the problems of preventive medicine, and the professor of hygiene must treat that branch of our science as a physician, a clinician, and not only as a bacteriologist.

Personally, in my clinical lectures I always devote equal importance to the prevention as to the cure of disease. (Applause.)

Dr. CASSÉUS (Haiti): Les progrès de l'hygiène ne passeront dans la pratique et les populations n'en auront tout le bénéfice que le jour où tout le monde connaîtra au moins les règles fondamentales de l'hygiène et en comprendra l'importance.

Il n'existe pas à proprement parler, de distinction entre l'hygiène privée et la prophylaxie générale. Nulle part, plus que dans cette question de la contagion du poison tuberculeux, n'éclate évidente la solidarité qui relie fatalement tous les membres d'une agglomération. Dans tous les cas où il s'agit de prendre des mesures de défense contre la maladie, l'hygiène privée présente une importance d'autant plus sérieuse qu'elle est plus méconnue, que c'est sur elle que lois et règlements sont totalement impuissants, et que sans elle, les mesures prises par les autorités restent le plus souvent inutiles. Dans

l'hygiène individuelle, un grand nombre de facteurs interviennent : l'alimentation, la propreté corporelle, les vêtements, l'aération, le chauffage, dans les pays où le soleil, le grand agent de la vie, n'envoie pas toute l'année ses rayons les plus chauds, les exercices physiques, etc. Aucun de vous, messieurs, n'ignore le rôle prépondérant de ces divers facteurs dans l'hygiène privée.

Sans vouloir entrer ici dans le développement de questions connues et si bien étudiées par vous, permettez-nous, en ce qui concerne la propreté corporelle, de signaler par exemple le peu d'importance que l'on donne chez les enfants aux soins de la bouche ; les préjugés d'éducation religieuse qui font que l'on néglige à dessein certains soins intimes des plus nécessaires cependant.

Dans toutes les questions de prophylaxie générale, l'hygiène individuelle joue un rôle essentiel.

Mais ici un problème se pose. Est-il possible de séparer les questions hygiéniques des questions sociales ? Nous les croyons étroitement liées. Dans les agglomérations actuelles, la question du logement, par exemple, semble, sinon passer avant toutes les autres, du moins tenir une place extrêmement importante. Le logement sain, suffisant, bien aéré est presque un mythe pour la famille d'ouvrier des grandes villes ; la promiscuité, l'entassement de tous les membres de la famille dans une même pièce offre les plus grands dangers au point de vue de l'hygiène physique et morale.

Si l'individu peut quelquefois, souvent même, avec un peu d'éducation, de conseils et de bonne volonté se soumettre aux prescriptions de l'hygiène privée, trop souvent aussi les conditions mêmes de son existence s'y opposent.

A quoi bon indiquer les bases de l'alimentation normale au pauvre diable qui ne dispose même pas d'un morceau de pain ; parler de la nécessité de changer fréquemment de linge à celui qui n'a pour se couvrir que quelque loque achetée chez le fripier, portant avec elle toutes les souillures, tous les germes pathogènes qu'elle a pu recueillir dans ses transferts successifs ; salubrité de l'habitation au chef de famille qui réunit sa femme, ses cinq enfants, souvent même ses vieux parents, dans une pièce unique, garnie d'une fenêtre, donnant sur une courette, obstruée elle-même par tous les linges que les ménagères mettent à sécher aux fenêtres. Ainsi donc l'hygiène privée sans laquelle, toutes les lois de la prophylaxie générale restent inopérantes, n'est qu'un leurre, tant que de puissantes et sérieuses réformes sociales n'auront pas donné aux déshérités, aux lutteurs, le véritable droit à l'existence. Mais ce qu'il faut surtout affirmer bien haut, et c'est là peut-être un des moyens à obtenir la réalisation de

ces progrès, c'est qu'en hygiène tout est solidaire, que le pauvre par le fait même de la misère physiologique, devient un terrain de culture favorable à tous les micro-organismes pathogènes, qu'en lui ils trouvent le lieu où s'exalte leur virulence et que, une fois déchaînée, l'épidémie égalitaire frappe le bourgeois comme l'ouvrier. Nous ne rechercherons pas toutes les causes qui favorisent le développement de la tuberculose.

Nous dirons seulement quelques mots de l'alcoolisme ; l'alcool, puissant agent de désorganisation et de désagrégation cellulaire, débilite l'organisme, affaiblit et ruine ses possibilités de défense naturelle, et assume, par là, une lourde part de responsabilité dans l'étiologie et la contagion de la plus meurtrière et la plus répandue des maladies microbiennes.

Dans une étude intitulée, "*L'Alcoolisme et le Café*," nous disions en 1916, au moment où la France envahie luttait de toute la force de son courage et de son bon droit, nous disions en parlant des méfaits de l'alcoolisme : "Combattre et vaincre l'alcoolisme, c'est régénérer la France par une victoire aussi grande que celle que ses armées héroïques rapporteront des champs de bataille dans les plis glorieux du drapeau Tricolore."

Notre prophétie en ce qui concerne les destinées de la France immortelles est pleinement réalisée. Elle a vaincu sur les champs de bataille un ennemi redoutable. Elle a rétabli les droits de la civilisation contre la barbarie. Mais elle n'a rien pu, ou presque, jusqu'ici, malgré le dévouement et la science d'hommes illustres dont les plus éminents siègent parmi nous aujourd'hui, elle n'a rien pu contre le danger national que constitue l'alcoolisme. Nous savons, d'après la statistique officielle que l'alcoolisme intervient, comme cause directe et efficace de mort, dans le tiers de la mortalité générale. Des statistiques sanitaires établies avec un rigoureux contrôle nous ont montré maintes fois le parallélisme qui existe entre la consommation alcoolique et la mortalité tuberculeuse.

L'augmentation ou la diminution de la consommation alcoolique générale a une influence directe sur la recrudescence ou sur l'affaiblissement de la mortalité générale par tuberculose. Certes, il faut tenir compte d'autres facteurs capables de favoriser l'étiologie de la tuberculose : l'humidité du climat, l'altitude, la densité de la population, la situation économique, l'absence de toute hygiène individuelle ; mais il reste démontré que de toutes les causes l'alcoolisme est la cause la plus importante de tuberculose. En luttant énergiquement contre les abus de l'alcool, on facilite dans une large mesure, la lutte contre la contagion tuberculeuse. Dans

la question de la diffusion du bacille de Koch, nous croyons qu'on a jusqu'ici trop demandé à la science médicale proprement dite, et pas assez aux moyens de prévenir le terrible fléau : connaître, assainir, assister, éduquer, et enfin traiter, voilà, croyons-nous, en quoi se résumerait l'action immédiate dans la lutte contre l'étiologie et la contagion de la tuberculose.

D'une façon générale, le diagnostic de la tuberculose est très difficile au début. La certitude absolue est rare, les signes nets, facilement perceptibles, d'auscultation et de percussion sont déjà assez tardifs ; le signe absolument démonstratif, la présence des bacilles dans les crachats, est plus tardif encore. Les signes vraiment précoces : interrogatoire, habitus extérieur, troubles fonctionnels, tels que la fièvre, la toux, des palpitations, les vomissements sont toujours un peu incertains. On croit souvent à de la neurasthénie, à une chlorose simple, à une fièvre intermittente dont la cause est mal définie. Alors qu'il s'agit en réalité de tuberculose. Le temps nous manque pour dire ici ce que nous pensons des distinctions que l'on établit quant à l'étiologie et la contagion de la tuberculose—entre les sexes et les diverses races ; des observations sur l'action exacte du climat, de la région topographique, des professions, des tempéraments, des idiosyncrasies.

D'aucuns prétendent que chaque espèce d'alcools et de boissons alcooliques, par exemple, doit engendrer chez l'homme une espèce d'alcoolisme spécifique, originale, distincte. Ce raisonnement, *a priori*, peut être rationnel ; mais il n'est nullement définitif.

Un grand nombre de facteurs peuvent entrer en jeu pour expliquer l'originalité de chaque espèce.

La science n'a pas encore amplement ni rigoureusement précisé tous les points de cette question de pathologie humaine.

Dans toutes ces considérations un fait semble dominer entièrement le débat. C'est que dans la lutte contre ce fléau social qui s'appelle la tuberculose, les efforts et les intelligences doivent porter sur l'enseignement et l'observation des lois de l'hygiène individuelle et de la prophylaxie générale. *Ici, prévoir, c'est peut-être guérir.* Cet enseignement et les devoirs qu'il comporte incombent à tous les citoyens de tous les pays. Toutes les nations du globe—la tuberculose n'a pas de patrie—doivent se grouper et apporter, non des encouragements, mais une aide efficace pour en arrêter les progrès. C'est l'effort commun qui tuera l'ennemi commun. La question de la contagion tuberculeuse intéresse tous les peuples et tous les gouvernements. Sa prophylaxie comporterait l'étude de toute la question sociale.

Les moyens indirects : combattre la misère, assainir les logements insalubres, assurer une alimentation suffisante aux familles nombreuses, supprimer l'alcoolisme, enseigner l'hygiène, entraver l'émigration des campagnes vers les villes, établir une répartition plus équitable des charges et des salaires et l'assistance bien comprise auraient peut-être plus d'efficacité que la lutte directe contre la contagion. Prévoir, c'est peut-être guérir.

L'union Internationale contre la Tuberculose a entrepris une noble et utile croisade. Son action pour être véritablement efficace et porter les fruits qu'on peut en attendre doit être universelle. La question comporte peut-être des difficultés plus sérieuses que nous ne pensons.

L'action effective que l'Union Internationale doit exercer, elle ne le peut, croyons-nous, sans parler des bonnes volontés toujours prêtes à encourager les bonnes idées, qu'avec la collaboration étroite et suivie des Gouvernements. Dans une question aussi sérieuse et aussi difficile, et qui soulève des problèmes d'une solution aussi délicate, seuls les pouvoirs publics disposent de moyens d'action capables de seconder utilement la grande œuvre de l'Union Internationale contre la Tuberculose. Certes, les décisions que nous prendrons à la Conférence de Londres auront une grande portée. Mais cette fois encore elles ne peuvent garder qu'un caractère provisoire.

Tant qu'un grand nombre de questions, en apparence subsidiaires, mais absolument capitales, quand on y regarde de près, n'auront pas été longuement méditées et sérieusement discutées en vue d'une solution essentiellement pratique, l'Union Internationale contre la Tuberculose ne pourra avoir de statuts définitifs.

Nous n'oublierons pas en terminant, que nous devons à l'Angleterre et au Gouvernement de Sa Majesté Britannique, qui nous ont offert dans leur belle capitale une hospitalité si cordiale, un double hommage de reconnaissance et d'admiration pour tout ce qu'ils ont fait dans la lutte contre les maladies qui déciment l'humanité.

Dans la question de la prophylaxie de la tuberculose, nous ne pouvons nous empêcher d'admirer pleinement la vigilance et la fermeté de l'administration ainsi que le respect de la loi et de l'intérêt général manifesté par le peuple d'Angleterre pourtant si jaloux de son individualité.

Telles sont les quelques suggestions que nous tenions à exposer devant cette importante assemblée.

Dr. BURNAND (Switzerland) : Mr. President, Ladies and Gentlemen,—I shall try to give in a few words a simple point of view about the question proposed for our discussion.

I think the *rôle* that the medical man could have, and ought to have, in the prevention of tuberculosis will be great and efficient if the doctors have the necessary qualities of conscience and knowledge.

Each tuberculous patient is, one time or another, in contact with a medical man. Let us learn (and let us teach it to students and young doctors) in every case when we are in touch with such patients, to do exactly and conscientiously what we ought to do as teachers and as doctors, and it will not be necessary to create many new institutions for the prevention of tuberculosis in the world.

I shall insist especially on three aspects of the question :

(1) The physician is the only person able to pronounce *in time* a diagnosis of tuberculosis. Yet on this early diagnosis depends the success of the struggle against tuberculosis, and the success of the cure in an individual case. It is most important that the doctor should know how to make this diagnosis.

It is certainly very useful to practise all the best methods for an early diagnosis. But we already have at our disposal one method very sure, clear and sufficient from the point of view of prophylaxis—I mean the simple and old analysis of the sputum. Dr. Rist, with whose opinion I am not in entire agreement, showed of what importance this is in every case. But the medical man, for different causes, fearing to frighten families and patients, often delays the application of this elementary test.

That is a question of conscience. We are, at Leysin, and in the other stations of consumptives, in a position to know that even in very evident cases of phthisis the diagnosis is often delayed one, two or three years, and, through the fault of the physician, is pronounced too late, when the disease has become absolutely hopeless.

That is the first duty of the physician. Renouncing every fear and putting away the disagreeable feeling as to losing a client, he must examine the sputum, and must be willing to send his patient to the sanatorium as soon as the diagnosis of tuberculosis is clear.

(2) The physician must have a complete knowledge of the evolution of tuberculosis, in order to treat the disease judiciously. We understand, through practice in the consumptive stations, that young medical men do not know the different forms of lung tuber-

culosis and its peculiar evolutions. I know a very good university where the diagnosis of the various types of phthisis is practically reduced to, say, tuberculosis of the right lung, of the left lung, or of both lungs.

But the recognition of tuberculosis not only as a definite disease, but as a very interesting and varied disease, is the only means to ensure the efficacious treatment of each case.

If one is to become a specialist in phthisiology, he must learn everything that it is necessary about the clinical forms, the evolution and the treatment of tuberculosis.

The programmes of the universities are so loaded, that it is impossible to teach this all-important question to the students. I think one of the first duties of our International Union is to organise the instruction of young doctors who are to become specialists in the matter.

I think it would not be very difficult to do. Many methods might be followed. Our Council could make arrangements with the medical chiefs of good sanatoria in different countries, and organise there a stay of several months. The special instruction organised at Paris, and, I think, in England, is a very good beginning; but a course of two or three weeks is not sufficient to make a specialist, and a stay in a sanatorium where the young doctors could be in prolonged touch with the patients is absolutely necessary, to familiarise them with many questions they could not learn through theoretical teaching. Young doctors are feeling themselves their insufficient instruction, for every year I receive many requests to come into my sanatorium, to learn what they do not know. Without good organisation the teaching of these is a great trouble for the medical chief, and we cannot teach them all the things which they ought to know. If our Union gets rich enough, I do not see why we could not create or buy a special popular sanatorium in which this instruction might be organised. Our arrangement with the League of the Red Crosses leaves our Union free to assume the immediate duty of undertaking inquiries of a social order concerning the development of tuberculosis in the world. But we ourselves ought to undertake immediately the clinical and medical formation of the specialist. I am certain that, everywhere, the medical chiefs of sanatoria would be happy to help our Council to organise the stay in their establishments. I propose that we pronounce clearly the wish that the Council of our Union will as early as possible study this question.

(3) Last, but not least, the rôle of the medical profession in

the prevention of tuberculosis is to struggle with energy against *quackery* (charlatanism). I do not only speak about medicaments announced in the newspapers, but about medicaments which every year, nearly every month, are published in the medical societies, and are, as soon as announced, "exploited" by chemists and business men.

That is a great danger for everybody. It constitutes one of the most important obstacles to an efficient struggle against tuberculosis throughout the world. Consumptives try in faith all these medicaments and new methods instead of going early to sanatoria—and lose money and time until their disease becomes hopeless. I think we are much too courteous towards the "inventors" of such new medicaments. We would not discourage investigators, but must not forget that "specialities" against tuberculosis are enriching the "inventors" too easily. I think we ought to make statements, written or spoken, about a new medicament only after having tried it for a long time, with due care. (Applause.)

Dr. BACHMANN (Switzerland): Le rôle du médecin dans la lutte contre la tuberculose est de la plus haute importance. C'est à lui qu'incombe la tâche de dépister les cas au début, c'est lui qui devra, aussitôt qu'un cas avéré aura été constaté, faire un examen minutieux de la famille et de l'entourage.

Nous devons tendre à ce que nos médecins s'intéressent toujours davantage à la prophylaxie anti-tuberculeuse.

Dans les villes, le médecin trop occupé aura recours au dispensaire anti-tuberculeux. A mon avis, cette collaboration n'est pas mise à contribution dans tous les cas où ce serait nécessaire. Grâce à la propagande active, les malades viennent généralement d'eux-mêmes aux dispensaires. Les médecins n'ont pas à craindre ces institutions. Au contraire, elles se mettent continuellement à leur disposition pour entreprendre les nombreuses démarches, dont ils sont tout heureux, de se décharger et pour continuer le contrôle à domicile.

A la campagne, le rôle du médecin est beaucoup plus important encore. Les dispensaires sont moins nombreux, se trouvent souvent à d'assez grande distance du malade et alors il incombe encore au médecin, la tâche dont les infirmières-visiteuses se chargent dans les villes.

La place du médecin dans la lutte anti-tuberculeuse est dans la famille même du malade. C'est là, qu'il pourra le mieux lutter

contre l'ignorance et l'indifférence de l'entourage du malade, c'est là qu'il pourra le mieux diriger ses soins du côté de l'enfant pour le préserver de la contamination. C'est surtout ce dernier point, qui est d'une importance capitale dans la lutte antituberculeuse. Il est du devoir de tout médecin de prendre une part active à la protection de l'enfance en prenant toutes les mesures nécessaires, pour empêcher une infection, ou si celle-ci a déjà eu lieu, pour préserver l'enfant d'une tuberculose active.

A part les mesures d'hygiène sociale et le contrôle médical régulier, les essais de dépister au moyen des réactions biologiques les enfants pré-tuberculeux et de les immuniser par des injections intradermiques méritent notre attention. Nous n'avons pas encore dépassé le stade de l'expérience et nous ne savons pas encore, s'il y aura moyen d'immuniser par cette méthode en grand pour assainir des régions entières. En tout cas, le moment ne me paraît pas encore venu, que chaque médecin puisse se servir de cette méthode.

Nous voulions seulement esquisser, par quelques mots, de quelle manière tout médecin doit nous aider, de sa place, à combattre cette maladie. Nous pouvons promulguer des lois, tenir des conférences, élaborer des programmes, ce n'est que le travail détaillé de nos organisations antituberculeuses avec le concours des médecins qui nous garantira le succès final. (Applause.)

Sir HUMPHRY ROLLESTON (replying to the discussion) : Mr. President, Ladies and Gentlemen,—I think this discussion has been a most instructive one, and somehow or other it all turns on the President. He, I think, ought to reply, because most of the remarks really have pointed to Edinburgh. (Hear, hear.)

Sir ROBERT PHILIP : Ladies and Gentlemen,—Before we part I am very anxious to express to the Press, who have been most kind in their attendance, our gratitude for the excellent reports and notices which have been reproduced through their courtesy.

In these days of hurried rush in life, some of us think that health, and health questions, hardly occupy the place they should in the public mind. Our Press rightly gives large space to reports of sports of all kinds. I could wish they were a little more generous towards health questions. Sport is a most important element in physical and moral hygiene, but there may be too great limitation to certain aspects of hygiene to the exclusion of others. Some of us feel—sympathising as we do with all aspects of manly sport—that that particular aspect of natural hygiene may be over-emphasised

to the disadvantage of other no less important aspects. I venture humbly to suggest to the Press that if, presently, they would take the larger view of hygiene they might achieve much for the nation, and would earn the gratitude of many who are consecrating time and effort to the health of the nation. (Applause.)

Ladies and Gentlemen, the public part of the International Conference is concluded.

Dr. MINOR: Mr. President, Ladies and Gentlemen,—I wish to express the gratification of all the visitors, whether delegates or not, at the thoroughly delightful way in which we have been entertained by the President and Committees who have had charge of this excellent Conference. (Applause.)

Sir ROBERT PHILIP: We are glad you have found things to your mind. I am sure we would all like to hear our host-in-chief, Sir Arthur Stanley. (Hear, hear.)

Sir ARTHUR STANLEY: Mr. President, Ladies and Gentlemen,—I must thank Dr. Minor very much for having positively insisted upon having that vote of thanks before he allowed you to go away, and I must thank you all very much for the way in which you have received it.

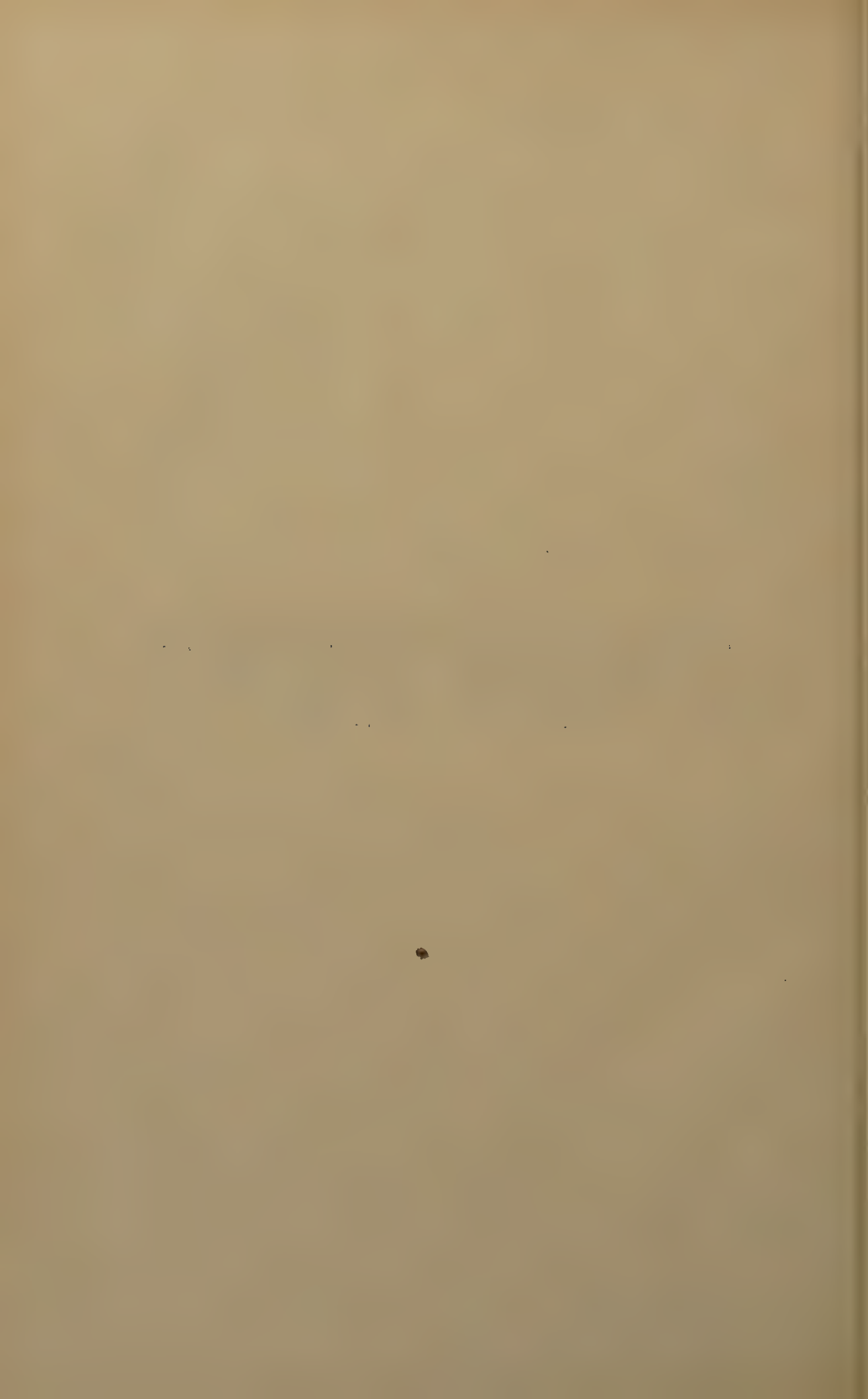
When we heard that there was a possibility of the International Union honouring us by coming to London, we naturally felt some little degree of anxiety and fear lest we should not be able to do everything that we wished to do to make the meeting both instructive and pleasant. Thanks to your kindness, we have, I think, been able to get through it all right—(Applause)—but I think that is less owing to our efforts than to the extreme courtesy and kindness which you have shown us, and to the manner in which you have entered so wholeheartedly and enthusiastically into such arrangements as we have been able to make for your profit and pleasure.

May I say it is quite unfair that I should be singled out to have this vote of thanks passed to me? The real people to whom it is due, after our President himself, are Dr. Perkins—our Honorary Secretary—(Applause)—Miss McGaw, who has helped us so much, and last, but decidedly not least, Miss Stickland, our indefatigable Secretary. (Renewed applause.)

Thank you once more, and may I say again, in the name of our new President, His Royal Highness the Prince of Wales, what an honour and pleasure it has been to us to greet the International Union here in London.

V.

REPORTS REGARDING THE PROGRESS OF
TUBERCULOSIS CAMPAIGN IN
DIFFERENT COUNTRIES.



ARGENTINE REPUBLIC.

PAR LE PROF. DR. GREGORIO ARÁOZ ALFARO
ET LE DR. ROBERTO MURPHY,

Délégués de la Liga Argentina contra la tuberculosis.

LA seule institution exclusivement destinée à cette lutte est la "Liga Argentina contre la tuberculose" fondée en 1901 par Gache et Coni à Buenos Aires et dirigée depuis beaucoup d'années par Aráoz Alfaro à la capitale et Clemente Alvarez à Rosario.

Elle a obtenu des pouvoirs publics : la déclaration obligatoire à la capitale et beaucoup d'ordonnances, malheureusement peu observées, pour la prophylaxie ; la création de quelques établissements hospitaliers spéciaux et la reconnaissance de l'utilité publique de la Ligue, à laquelle on assigne une petite subvention.

La Liga tient sous sa directe dépendance :

1°, la propagande publique (brochures, conférences, etc.) ;

2°, l'entretien de 4 dispensaires antituberculeux à Buenos-Aires, avec assistance médicale et subsides alimentaires et pécuniaires aux malades ;

3°, un asile à la campagne pour les enfants des tuberculeux, établissement préventif ("Hogar José Elordy," à Banfield).

Elle procure les moyens d'augmenter ses dispensaires et ses colonies préventives à la campagne, montagne et mer.

A Rosario, la Liga soutient 2 dispensaires avec les même services.

Plusieurs filiales viennent de se fonder en divers points du pays.

A Córdoba, une société spéciale pour assistance contre la tuberculose a été créée ; elle a un dispensaire et un petit hôpital spécial pour 80 malades (Société "Transito Cáceres de Allende").

Comme établissements d'assistance, le Gouvernement national soutient :

1°. Un sanatorium d'altitude ("Santa Maria") à 750 m., pour 600 malades des deux sexes.

2°. Un hôpital de campagne, près Buenos-Aires (Hôpital "Vicente Lopez Planes"), contenant maintenant 300 lits pour femmes et enfants mais devant augmenter jusqu'à 500.

3°. Un dispensaire antituberculeux à la capitale.

4°. La "Sociedad de Beneficencia" soutenue par le même gouvernement, tient en outre un Asile maritime et hôpital à Mar del Plata (200 enfants à peu-près).

La Municipalité de la ville de Buenos Aires soutient :

1°. Un hôpital spécial sous-urbain (Hôpital "Tornu") avec, 300 lits à peu-près.

2°. Des pavillons spéciaux pour tuberculeux à l'Hôpital d'infectieux "Muñiz" (250 lits).

Elle doit fonder de suite 5 dispensaires antituberculeux à la capitale.

Le gouvernement de l'État fédéral de Córdoba soutient en outre 3 dispensaires.

Comme institutions antituberculeuses, on peut encore citer :

2 colonies de campagne de la Sociedad "Escuelas y Patronatos" (établissements préventifs pour enfants faibles).

2 écoles à l'air, à la capitale (Conseil National d'éducation) pour enfants faibles.

Colonies de vacances (pour la capitale, Rosario, etc.).

On voit donc, il n'y a que les éléments premiers de la lutte. Il faut les multiplier et perfectionner.

Le gouvernement national a proposé une loi affectant à cette lutte des ressources qu'on estime devoir monter à peu-près à quatre millions de piastres par année.

La Liga Argentina contra la tuberculose maintient une propagande active et on a déjà célébré deux Conférences nationales de prophylaxie antituberculeuse où l'on a discuté et arrêté des plans de lutte. La 3^{ème} doit se tenir en Octobre prochain à La Plata.

THE COMMONWEALTH OF AUSTRALIA.

By DR. CAMAC WILKINSON,

London (representing Australia).

THE problem of tuberculosis in the Commonwealth of Australia is just as insistent as in other parts of the British Empire. In 1919, with a total population of 5,247,019, the number of deaths from all forms of tuberculosis was 3948, viz. 2351 males and 1597 females. Tuberculosis of the lungs and acute miliary tuberculosis accounted for 3,365 deaths. Since influenza caused 11,552 deaths in 1918, it is possible and likely that, but for this epidemic of influenza, the mortality from pulmonary tuberculosis in 1919 would have been still higher. In any case the estimate from statistics, founded upon death certificates, is no certain one.

These statistics show two facts in accordance with observations elsewhere. Firstly, there is a striking immunity against tuberculosis between the ages of 5 and 15. The death-rate from tuberculosis among males during this earlier period of life is 36 per 445,400 living units in this age-period, while in the later period, between the ages of 20 and 30, there is a mortality of 439 males per 455,000 living male units. Secondly, in both these age-periods the mortality among females is both relatively and absolutely greater than that among males. Among females between the ages of 5 and 15 there are 59 deaths per 437,000, and between the ages of 20 and 30 there are 485 deaths per 439,796 females.

Still, if statistics are to be trusted for comparisons, Australia has a lower death-rate from pulmonary tuberculosis than any country except Roumania, Denmark and New Zealand.

Moreover Australia cannot lay the burden of the prevalence of tuberculosis upon immigration. 2994 deaths out of 3948 occurred among those

born in the Commonwealth; and of the remainder (954), 400 had lived in the Commonwealth for ten years or more, 317 of these for more than twenty years.

Accordingly the climate of Australia confers no special immunity, except perhaps in the case of lupus, which is so rare that the author, who was attached to large hospitals in Sydney for twenty-seven years and had charge of the Skin Department of the Sydney Hospital for three years, did not see a single case of lupus in any child or adult born in Australia during this long period of time. Is it bright and prolonged sunshine or the ever-present sea-air that secures for the skin surfaces this immunity from tuberculosis? It is also a fact that Dr. Littlejohn, testing nearly 500 children by von Pirquet's method, found that less than 5 per cent. reacted.

The measures for checking the ravages of this disease are similar to those adopted in European countries, with the one exception in Sydney that tuberculin has for many years held its place in the diagnosis and treatment of tuberculosis at the State Tuberculosis Dispensary, where almost all of the medical officers are graduates of the University of Sydney.

In Victoria the death-rate is higher than it is in New South Wales. Much of this difference may be traced to the greater prevalence of pulmonary tuberculosis in mining centres, especially in Bendigo. An interesting

Inquiry into the Prevalence of Tuberculosis at Bendigo' forms one of the Service Publications (No. 19) issued in 1920 by the Commonwealth and compiled by Dr. D. G. Robertson, D.P.H. Dr. Robertson writes thus (p. 18): "Of the 455 Victorian male pensioners from phthisis, no fewer than 230 or 50 per cent. were miners or had followed the occupation of mining." "In 1917 the number of miners in the State of Victoria was 7954 and the male population 671,382; thus 0.01 per cent. of the population was responsible for 50 per cent. of the pensioners' invalidity due to pulmonary tuberculosis in males." He also tells us "that in Bendigo the deaths from phthisis in 1919 per 10,000 of population of Bendigo were 25.49 in males and 6.16 in females; and in males aged 21 and upwards 43.48, and in females aged 18 and upwards 7.62 per 10,000 living units in these same age-groups." Deaths among males six times as great as among females of the same group!

The results of the von Pirquet reactions are also interesting, because they show that in persons giving no history of exposure to infection, excluding persons classified as suffering from tuberculosis, "sixty-nine tests were made. Of these 16 were positive and 2 doubtfully positive, and 51 negative." In Australia it is not true that a high percentage of the population react to tuberculin.

The measures suggested to mitigate the effects of tuberculosis are:

- (1) A sanatorium, "to which all advanced cases should be encouraged to go."
- (2) A clinic for consultation.
- (3) A dispensary for the *treatment* of home cases.
- (4) A laboratory for the investigation of clinical material.

AUSTRIA.

VON DR. MÜLLER.

EHE ich auf das eigentliche Thema eingehe, will ich nur kurz einige statistische Daten bekannt geben. Im Jahre 1920 starben in Wien im Alter von 1-70 Jahren an Tuberkulose 3458 Männer und 3724 Weiber, gegen 4638 Männer und 5169 Weiber im Jahre 1919. Die Daten über die Tuberkulosesterblichkeit im übrigen Oesterreich liegen noch nicht vor. Aus den vorher angeführten Zahlen ist jedoch einwandfrei zu konstatieren, dass die Tuberkulosesterblichkeit in Wien im Jahre 1920 deutlich zurückgegangen ist. Was können wir aus dieser an und für sich erfreulichen Tatsache für Schlüsse ziehen. Ich glaube die Abnahme der Todesfälle sagt uns nicht gar zu viel und berechtigt uns nicht den Kampf gegen die Tuberkulose aus diesem Grunde allzu optimistisch zu beurteilen. Wichtiger wäre es, genaue Angaben über die Tuberkuloseerkrankungen zu besitzen, doch stehen uns diese trotz der Anzeigepflicht dieser Krankheit nicht zur Verfügung und wir sind auf mutmassliche Berechnungen angewiesen. Die Ernährungsverhältnisse in unserem Staate sind noch immer so schlecht und die wirtschaftliche Lage des Staates und der grossen Zahl der Einzelindividuen ist noch immer so trostlos, dass wir gar keine Ursache zur Annahme haben, dass mit der Abnahme der Tuberkulosesterbefälle gleichzeitig auch eine Abnahme der Tuberkuloseerkrankungen einhergehe. Es drängt sich mir der Gedanke auf, dass in den letzten Jahren vor 1920 infolge der Ungunst der Verhältnisse der Tod unter den Tuberkulösen eine so reiche Ernte gehalten hat, dass eben allzu viele dieser Kranken bereits dahingestorben sind und gegenwärtig für eine weitere reiche Ernte des Todes die Saat noch nicht reif genug ist. Es wird ja sicher auch andere Erklärungen für die Abnahme der Tuberkulosesterblichkeit geben, sagen wir z. Beisp. nur eine Abschwächung der Virulenz des Erregers. Auch wäre zu bedenken, dass wir im Jahre 1920 keine so schwere Grippeepidemie durchzumachen hatten wie im Jahre 1919 und dass damals durch diese acute Erkrankung sicher eine grosse Anzahl latenter Tuberkulöser aktiviert worden sind, die dann unter dem klinischen Bilde der Tuberkulose zum letalen Ende kamen. Alles in allem aber glaube ich, dass wir keine Ursache haben, bereits jetzt mit einer Abnahme der Tuberkuloseerkrankungen zu rechnen. Wir werden, wenn wir aus der Zahl der Todesfälle auf die der Erkrankungen schreiten wollen, einfach in Hinkunft die Todesfälle nicht mehr wie bisher mit 5 oder 6 sondern mit 7 oder 8 multiplizieren müssen und der Kampf gegen die Tuberkulose muss weiterhin mit grösster Energie geführt werden. Im verflossenen Jahre ist von den einzelnen Körperschaften, die sich die Abwehr der Tuberkulose zur Aufgabe gestellt haben, wie auch von den einzelnen Funktionären dieser Körperschaften mit grossem Eifer und bewunderungswürdiger Opferfreudigkeit gearbeitet worden. Auch das Volksgesundheitsamt hat den einzelnen Unternehmungen seine materielle und moralische

Unterstützung im weitestgehenden Masse zukommen lassen und wird das in der Erkenntnis der Wichtigkeit dieses Zweiges der öffentlichen Gesundheitspflege mit allen ihm zu Gebote stehenden Mitteln auch weiter tun.

In der Art der Einrichtungen und der Methoden der Tuberkulosebekämpfung haben sich grundsätzliche Veränderungen seit dem Vorjahre nicht vollzogen.

Es bricht sich immer mehr und mehr die Erkenntnis Bahn, dass die Grundlage des organisierten Kampfes gegen die Tuberkulose nur die Fürsorgestelle sein kann, wenn wir auch der Heilstätten- und Spitalsbehandlung nicht entraten können. Die Fürsorgestelle soll allerdings nicht nur Ratschläge erteilen und hat, wenn sie sich auch von jeder Art der Behandlung fern halten soll, doch noch immer ein grosses und schönes Arbeitsfeld. Ihre Aufgabe ist es vor allem, die offenen Tuberkulösen zu erfassen, die Seuchenherde aufzudecken und zu assanieren, indem sie die geeigneten Massnahmen für die im verschiedenen Grade erkrankten Tuberkulösen trifft, die einen in Heilstätten, die anderen in Spitälern unter bringt oder der ambulatorischen Behandlung zuführt und Tuberkulose gefährdeten allenfalls in Tagesheimstätten Unterkunft verschafft. Auf diese Art wird die grosse Masse der Tuberkulösen gesiebt, es werden Ersparungen im Kampfe gegen die Tuberkulose erzielt, nur solche Kranke Heilstätten zugewiesen, die tatsächlich heilstätten fähig sind und auf diese Art die wenigen Heilstättenbetten besser ausgenützt. Von der Bevölkerung wird dieses segensreiche Wirken bereits anerkannt, aber noch nicht so ganz und durchwegs von den öffentlichen und humanitären Körperschaften, die berufen wären, in ihrem eigenen Interesse die Tätigkeit der Fürsorgestellen materiell und moralisch zu unterstützen. Von lobenswerten Ausnahmen abgesehen, verhalten sich vor allem viele Gemeinden, darunter auch grosse Städte mit reicher Industrie ablehnend gegen Unterstützungen der auf ihrem Verwaltungsgebiete tätigen Fürsorgestellen und auch die Krankenkassen beteiligen sich nur vereinzelt an der Aufbringung der Mittel, welche die Fürsorgestelle gerade den Kassenmitgliedern in reichem Masse zugute kommen lässt. Kassen und Gemeinden haben beide ein hervorragendes Interesse an einer gut arbeitenden Fürsorgestelle und die Mittel, die sie dieser zuwenden, lassen sich sicher mehrfach ersparen an dem was sonst an Krankengeld und sonstigen Auslagen aufgebraucht wird.

Bis jetzt muss der Staat fast alle Mittel für den Betrieb der Fürsorgestellen aufbringen, soweit sie nicht von den einzelnen den Betrieb führenden Vereinen aufgebraucht werden. Trotz dieser Schwierigkeit ist es gelungen, nicht nur die bestehenden Fürsorgestellen auszubauen, sondern auch ihre Zahl zu vermehren und das Volksgesundheitsamt hat in Erwägung des grossen Nutzens und der Vorteile einer guten Fürsorgetätigkeit diese Bestrebungen stets im weitesten Masse unterstützt.

Seit April vorigen Jahres sind in Oesterreich 5 neue Fürsorgestellen errichtet worden, sodass also jetzt im ganzen 43 in unserem kleinen Vaterlande bestehen.

Von diesen Fürsorgestellen entfallen 13 auf die Stadt Wien, 12 auf

Niederösterreich, 4 mit 1 Expositur auf Oberösterreich, 10 auf Steiermark und je 1 auf Salzburg, Kärnten, Tirol und Vorarlberg.

Ein sehr schwieriges Kapitel in der Bekämpfung der Tuberkulose bildet bei uns die Heilstättenfrage. Die Heilstätten sind auf der einen Seite ein unentbehrlicher Faktor im Kampfe gegen die Tuberkulose, auf der anderen Seite aber sind die Betriebskosten so ungeheuer, dass es vielfach kaum möglich ist, den Betrieb noch aufrecht zu erhalten.

Die Zahl der Heilstättenbetten hat sich in diesem Jahre nicht wesentlich vermehrt, da die Baukosten fast unerschwinglich sind und man mit einem Aufwande von 70–80,000 K. pro Bett rechnen muss. Immerhin ist auch auf diesem Gebiete einiges geleistet worden. In Grimmenstein ist Dank der Hilfe des schwedischen roten Kreuzes und des Vereines Rädde barnem und unter nicht unbeträchtlicher Mithilfe des Staates ein Pavillon für 250 knochentuberkulöse Kinder fertiggestellt und bereits belegt worden. Ein Teil der alten Baracken in Grimmenstein musste allerdings aufgelassen werden, doch werden immerhin gegenwärtig 350 Kinder gegen 240 im Vorjahre dort verpflegt und die Schweden leisten für jedes dieser Kinder einen Beitrag von 75 Oere pro Tag auf die Dauer von 2 Jahren.

Auf der Stolzalpe bei Murau ist ein Pavillon mit 40 Betten für knochentuberkulöse Kinder dem Betriebe übergeben worden und die Lungenheilanstalt Gaisbühel bei Nenzing in Vorarlberg mit 120 Betten ist ebenfalls fertig gestellt und bereits im Betriebe.

Einschliesslich der Sanatorien verfügen wir heute in Oesterreich über 3400 Heilstättenbetten für Tuberkulöse. Nehmen wir an, dass jedes Bett nur durch 3 Monate im Jahre von einem Kranken belegt ist, so können wir insgesamt 13,600 Tuberkulöse jährlich in Heilstätten unterbringen, d.i. wenig, denn wenn, wie ich eingangs erwähnte, in Wien allein im Jahre 1920 an Tuberkulose 7182 Personen starben, so müssen wir annehmen, dass mindestens 5 mal soviel, d.s. 35,910 Personen an Tuberkulose erkrankten. Da Wien ungefähr $\frac{1}{3}$ der Bevölkerung des ganzen Staates ausmacht, so müssen wir mit rund 100–115,000 tuberkulös Erkrankten in Oesterreich rechnen. Nehmen wir weiterhin an, dass von diesen Erkrankten nur der dritte Teil, also 30,000 oder 35,000 heilstättenbedürftig sind, so ergibt sich, dass wir für mehr als 50 % dieser Kranken keine Unterbringungsmöglichkeit in Heilstätten haben. Trotzdem aber stehen heute in vielen Heilanstalten Betten leer, denn die Unterbringung eines Tuberkulösen in einer Volksheilstätte ist eben heute leider keine Platzfrage sondern eine Geldfrage. Die Anstalten müssen um ihre Betriebsauslagen nur einigermaßen zu decken die Verpflegskosten ständig erhöhen und sind heute bereits bei einer Verpflegsgebühr angelangt, die es den meisten Kranken, wenn sie nicht Mitglied einer Krankenkassa oder mit Glücksgütern reich gesegnet sind, unmöglich macht in einer Heilstätte ihre Genesung zu suchen. Das Volksgesundheitsamt hat zwar allenthalben den Heilstätten Unterstützungen für Betriebsabgänge zugesagt und auch bewilligt, doch können diese Unterstützungen natürlich nicht in einem solchen Ausmasse gewährt werden, dass damit gleichzeitig eine Herabsetzung der Verpflegsgebühren

erzielt werden kann. Die Lage der Heilstätten ist daher fast durchwegs sehr schwierig, zumal auch die Erhöhung der Verpflegsgebühren zumeist von problematischem Werte ist, da sie vielfach nur ein Leerstehen von Betten zur Folge hat und ausserdem die Verpflegskosten seitens der Kassen und sonstigen öffentlichen Faktoren doch mehr oder minder immer verspätet einlangen nämlich zu einer Zeit, da mit ihnen das Auskommen nicht mehr gefunden werden kann. Infolge dieser misslichen Verhältnisse war unsere älteste und grösste Tuberkuloseheilanstalt in Alland im Juli vorigen Jahres in derartige finanzielle Schwierigkeiten geraten, dass sie, um die drohende Sperrung zu verhüten, vom Staate in Besitz und Betrieb übernommen werden musste. Aus all dem Gesagten ergibt sich, dass mit einer Vermehrung der Heilstättenbetten, wenn diese der hohen Herstellungskosten wegen nicht an und für sich unmöglich wäre, uns auch nicht gedient wäre, da es unmöglich ist, weitere Anstalten zu erhalten und zu betreiben, so lange nicht ein Abbau oder wenigstens eine gewisse Stabilisierung der Preise erreicht werden kann. Dasselbe gilt schliesslich und endlich auch von den Spitälern. In diesen stehen uns für Tuberkulose ungefähr 5600 Betten zur Verfügung.

Die Zahl dieser Betten ist natürlich auch zu gering und wenn sie auch, da es sich zumeist um öffentliche Krankenanstalten handelt, in denen, bei Zahlungsunfähigkeit des Patienten, öffentliche Faktoren für die Verpflegskosten aufkommen oder, wie dies in Wien der Fall ist, das Defizit des Krankenanstaltenfonds mit diesen Kosten weiter belastet wird, fast stets voll belegt sind, so ist doch auch hier, trotz der Notwendigkeit, eine Vermehrung der Betten mit Rücksicht auf die ungeheuren Baukosten kaum möglich.

Einen gewissen und nicht zu unterschätzenden Wert bei der Bekämpfung der Tuberkulose möchte ich gegenwärtig den Erholungsstätten und Tagesheimstätten, welche vielfach in dankenswerter Weise von ausländischen Missionen betrieben oder wenigstens mit Lebensmitteln beliefert werden zuschreiben. Wie gross die Zahl dieser Tagesheim- und Erholungsstätten ist, kann ich nicht sagen, da sie beständig schwankt, jedenfalls ist ihre Errichtung und ihr Betrieb bedeutend billiger als jener der Heilstätten und ihre Ausgestaltung und Vermehrung besonders in grossen und industrie-reichen Orten sehr zu wünschen. Sie bieten uns zwar keinen vollkommenen Ersatz für die Heilstätten, da es kaum möglich sein wird wirklich Tuberkulose in diesen Heimstätten zu heilen. Jedoch kann damit die Tätigkeit der Fürsorgestellten bedeutend unterstützt werden, indem diese die infektionsgefährdeten Wohnungsgenossen offener Tuberkulöser dort unterbringen und kräftigen können.

BELGIUM.

PAR LE DOCTEUR DERSCHIED, DE BRUXELLES,

*Vice-Président de la Ligue et Président de la Co-opérative Nationales Belges
contre la Tuberculose.*

L'activité de la lutte contre la tuberculose ne s'est pas démentie, en Belgique, au cours de cette dernière année.

Nous avons même la profonde satisfaction de reconnaître que cette activité s'est encore accrue, et qu'elle tend à se généraliser de plus en plus ; de nouvelles initiatives se sont fait jour, et l'élan en faveur de l'organisation sociale contre la maladie devient général.

Avant la guerre, la lutte antituberculeuse était confiée presque exclusivement à des œuvres d'initiative privée ; actuellement, et c'est là le fait dominant, primordial de notre organisation nouvelle, ces œuvres privées peuvent compter sur l'appui moral et sur l'intervention financière des pouvoirs officiels.

L'importance de cette réforme est considérable ; elle permet d'envisager la stabilité de nos institutions, leur développement, ainsi que leur coordination dans une ampleur d'action de plus en plus vaste et féconde.

ASSOCIATIONS PRIVÉES.

Les *Associations privées*, dont le rôle d'initiative a été prépondérant en Belgique, sont au nombre de trois ; ce sont :

1° La *Ligue nationale belge contre la Tuberculose*, dont la mission est, en ordre principal, prophylactique.

2° La *Coopérative nationale contre la Tuberculose*, qui se propose de doter le pays de sanatoria et d'institutions antituberculeuses.

3° Les *Œuvres de Préservation de l'Enfance*, conçues d'après le programme du professeur Grancher.

POUVOIRS PUBLICS.

Au nombre des *Pouvoirs publics* et *Institutions officielles* qui interviennent actuellement dans la lutte, figurent :

1° L'*Etat*. Par le soutien financier puissant que le gouvernement accorde à nos institutions, le rôle de celui-ci est devenu primordial.

2° En second lieu, les *Pouvoirs provinciaux* participent d'une façon plus ou moins large aux charges de ces œuvres ; l'unanimité de leur contribution consacre le principe justifié de leur intervention.

3° De leur côté, les *Pouvoirs communaux* consentent de plus en plus à supporter les frais de traitement des malades dans des instituts appropriés.

4° Enfin, le *Conseil supérieur d'Hygiène publique* a été sollicité par le gouvernement de préparer les voies à une organisation sociale collective contre la tuberculose.

Nous nous permettrons de donner un rapide aperçu des efforts récemment accomplis par chacun de ces groupements.

INITIATIVE PRIVÉE.

Ligue nationale belge contre la Tuberculose.—Comme nous le disions plus haut, l'importance acquise par la *Ligue nationale belge contre la Tuberculose* pendant les années de guerre s'est maintenue, grâce aux subsides conséquents mis à sa disposition par le gouvernement.

L'œuvre groupe un nombre imposant de médecins : deux cent dix environ, membres de comités, médecins de dispensaires, médecins de sanatoria ou d'œuvres antituberculeuses affiliées et subsidiées par la Ligue.

Les dispensaires ont continué à fonctionner à la satisfaction générale ; leur nombre s'élève à quatre-vingt-neuf. En outre onze nouveaux dispensaires sont en formation.

Quatre-vingt-onze infirmières visitent régulièrement et dépistent les tuberculeux, s'occupant du service de prophylaxie à domicile et de l'organisation de consultations.

Le nombre total de malades inscrits, bien qu'ayant fléchi comparative-ment aux années 1917 et 1918, est encore très important : 23,189 tuberculeux ont été secourus pendant cette année. Ce nombre se répartit de la façon suivante :

4,729	tuberculeux	pour la province	d'Anvers.
3,657	"	"	" de Brabant.
137	"	"	" de la Flandre Occidentale.
1,326	"	"	" de la Flandre Orientale.
7,714	"	"	" de Hainaut.
4,002	"	"	" de Liège.
754	"	"	" de Limbourg.
872	"	"	" de Namur.

Le faible chiffre de malades de la Flandre Occidentale s'explique par le fait que la plupart des dispensaires ont été fermés ou détruits lors des hostilités, et que seul le Dispensaire de Bruges a pu fonctionner. Il en est de même de la province de Luxembourg, qui ne figure pas sur le relevé ci-dessus, et dans laquelle l'Œuvre est en voie de réorganisation.

On aura une idée de l'importance de l'action de la Ligue par les sommes dépensées par elle pour la lutte contre le fléau. C'est ainsi que, en outre des sommes importantes qui couvrent les frais généraux (installations de dispensaires, entretien des bâtiments, traitement du personnel, etc.), on constate que l'assistance alimentaire s'est élevée à environ 2,400,000 francs.

Elle a contribué à la marche normale des œuvres antituberculeuses qui lui sont affiliées en leur donnant des subsides importants : c'est ainsi que l'Œuvre de la Préservation de l'Enfance a reçu un peu plus de 1,000,000 de francs ; qu'elle a donné environ 100,000 francs pour le Sanatorium de Wenduyn ; 86,000 pour celui de Westmalle ; 35,000 pour le Sanatorium *Prince Charles*, à Auderghem ; 25,000 à 28,000 pour le Sanatorium *Marie-*

José, à Boitsfort ; 90,000 à 95,000 pour celui de Borgoumont ; 25,000 environ pour le Sanatorium de Magnée ; 50,000 à 60,000 pour celui de Havré ; 146,000 pour les deux Sanatoria de La Hulpe-Waterloo ; 65,000 à 70,000 pour Buysinghen ; 120,000 à 125,000 pour Breedene s/mer ; 20,000 pour le Preventorium d'Eupen ; 20,000 à 25,000 pour le Sanatorium militaire *Jeanne d'Arc*, et 65,000 à 70,000 pour le Sanatorium *Lumière et Vie*, ces deux derniers situés à Montana en Suisse.

Le Comité directeur s'est efforcé de donner une action plus générale aux services de prophylaxie en instituant une propagande active. Des films ont été achetés qui servent à illustrer des conférences publiques ayant pour but l'instruction de la population sur les mesures d'hygiène à prendre pour éviter et combattre la maladie.

Des brochures spéciales, petits manuels d'hygiène illustrés de nombreuses gravures, édités pour la Ligue par la Commission Rockefeller à Paris, sont distribués en grand nombre dans le même but.

Tout en encourageant et en coordonnant les efforts des sections provinciales dans leur activité, le Comité Directeur intervint pour les doter du matériel scientifique indispensable à l'examen complet du malade et à l'établissement du diagnostic. C'est ainsi qu'il a décidé de doter chaque section d'un laboratoire de radiologie, d'un ou plusieurs laboratoires de recherches biologiques, de cabinets de laryngoscopie, etc. Ce programme est en cours de réalisation. Il a cherché aussi, au cours de cette année 1920, à stimuler l'ardeur scientifique de ses membres en créant un prix de 500 francs à décerner au meilleur travail original ayant trait à la tuberculose, et en organisant des réunions scientifiques mensuelles où sont discutés les problèmes concernant la tuberculose, et où ses membres ou les personnalités en vue du monde médical sont invités à venir exposer leurs vues en des conférences qui rencontrent de plus en plus de succès.

Ainsi la Ligue, tout en continuant et perfectionnant son action sociale, a compris qu'il était de son devoir de contribuer par ses discussions et ses travaux scientifiques à la marche du progrès qui doit un jour triompher du mal terrible contre lequel elle tend toutes ses énergies.

Coopérative nationale belge contre la Tuberculose.—Au point de vue curatif l'activité de la lutte contre la tuberculose n'a pas été moindre qu'au point de vue prophylactique. Rappelons que c'est au cours de l'année 1918 que le Comité national de Secours et d'Alimentation, qui remplaçait le gouvernement belge pendant les années d'occupation du territoire, prit l'initiative de fonder la *Coopérative nationale contre la Tuberculose*. Le Comité National lui-même intervint lors de sa constitution pour une somme de 2,000,000 de francs, et il lança un chaleureux appel auprès des philanthropes ainsi qu'auprès des principales autorités financières et industrielles du pays ; en quelques mois, un capital de 10,000,000 de francs fut recueilli.

Cette société, qui à l'armistice avait repris momentanément l'ambulance de l'*Océan* de la Panne, où elle donna asile provisoirement à près de 900 enfants, possède actuellement le *Sanatorium marin de Breedene s/mer*, près d'Ostende, de 125 lits destinés aux enfants atteint de tuberculose osseuse.

Elle a acquis le bel établissement d'Eupen qui peut recevoir 125 malades menacés de tuberculose.

Elle est intervenue pour une somme importante dans la création du Sanatorium pour femmes de Westmalle, dans la province d'Anvers, qui comporte 100 lits.

Elle a estimé, à juste titre, que dans le traitement de la tuberculose, la cure d'altitude ne devait pas être négligée ; à cet effet, elle exploite : un sanatorium militaire réservé aux soldats belges, et elle s'est entendue avec un philanthrope éclairé qui a mis à sa disposition un sanatorium populaire pour 80 enfants belges atteints de tuberculose et notamment de lésions osseuses si favorablement influencées par la cure de soleil.

Ces deux établissements sont situés en Suisse, à *Montana, dans le Valais*, à 1,500 mètres d'altitude.

La Coopérative a aussi décidé la construction immédiate d'un nouveau pavillon pour femmes qui sera annexé aux *Sanatoria populaires de La Hulpe-Waterloo*.

Elle projette la création d'un sanatorium de 100 lits pour femmes atteintes de tuberculose chronique, et qui sera érigé dans le voisinage du *Sanatorium de Buysinghen*.

Enfin, convaincue qu'il importe de consacrer de grands efforts dans la lutte sociale entreprise contre le fléau par la prévention contre la maladie, elle a décidé la création d'un grand *sanatorium marin* de 250 lits pour enfants directement menacés de tuberculose ou atteints déjà de lésions ganglionnaires fermées. Cet établissement, dont la construction sera incessamment commencée, sera donc réservé aux cas médicaux ; il sera érigé à *Clemskerkesur-Mer*, sur le littoral belge.

D'autre part, la *province de Liège* a mis récemment en exploitation le nouveau Pavillon pour femmes et enfants qui a été annexé à son sanatorium de *Magnée*, et qui comporte 80 lits nouveaux.

La Section hennuyère de la Ligue Nationale a acquis et ouvert un nouvel établissement pour femmes tuberculeuses, dans le voisinage de son sanatorium d'*Havré*, réservé aux hommes.

Enfin, le *Service de Santé de l'Armée belge* s'est rendu acquéreur d'une vaste propriété située à Marchin, dans la province de Liège, et qui sera sous peu mise à la disposition des soldats qui ont contracté la maladie.

D'autres projets destinés à doter la Belgique de nouveaux établissements font, dès à présent, le sujet d'études attentives.

Préservation de l'Enfance contre la Tuberculose.—De son côté l'*Œuvre de la Préservation de l'Enfance contre la Tuberculose* de Bruxelles n'est pas non plus restée inactive. Comme on le sait, le but de cette Œuvre, inspirée par la conception sociale du professeur Grancher, consiste à soustraire les enfants encore sains à leur milieu contaminant. Outre sa pouponnière et la colonie de Berchem, elle possède à la campagne, à *Flobecq* et dans les environs, une colonie de placement familial des enfants chez des particuliers.

La caractéristique essentielle de l'activité récente de cette Œuvre consiste dans l'organisation complémentaire de la colonie de Flobecq.

Elle a fait l'acquisition d'un "home," nommé *Foyer Elisabeth*, qui sert de quarantaine pour les nouveaux arrivants ainsi que d'institut d'isolement et de traitement pour les enfants devenus malades chez les nourriciers.

Elle a organisé un service d'infirmières diplômées dirigeant ce home ; de plus, ces infirmières sont chargées de la surveillance de l'hygiène de tous les enfants et des nourriciers.

Enfin, un service de bains-douches et de bains spéciaux a été annexé à ce home. La réalisation de l'ensemble de ces mesures a donné immédiatement un meilleur rendement à la colonie, et a corrigé les petites imperfections du placement familial des enfants.

En résumé, et à titre comparatif, la Belgique possédait avant la guerre huit sanatoria populaires comportant environ 600 lits. Actuellement, elle dispose de dix-huit établissements de cure et de préservation comprenant environ 1500 lits sans y compter les Sanatoria de Chanay et de Job en France, créés par le gouvernement belge, et qui, étant donné leur rôle transitoire, seront prochainement désaffectés.

Lorsque les établissements actuellement en voie de réalisation ou déjà en construction seront terminés, ce chiffre s'élèvera à 2000. Il y a lieu, à ce propos, de remarquer que cet effort est réalisé directement en vue de la lutte contre la tuberculose par des œuvres qui se consacrent exclusivement à celle-ci. Mais, à côté d'elles, bien des initiatives, soit privées, soit officielles, telle par exemple l'Œuvre nationale de la Protection de l'Enfance, concourent également, quoique d'une façon indirecte, au même but de préservation : les œuvres de grand air, les colonies scolaires, les écoles en plein air, les homes marins ou de campagne, les colonies pour enfants débiles, etc., dont le nombre s'est multiplié d'une façon extraordinaire, jouent un rôle considérable qui ne peut être contesté.

POUVOIRS OFFICIELS.

Comme nous l'avons déjà mentionné, les efforts réalisés en Belgique avant la guerre dans la lutte contre la tuberculose étaient dus en très grande partie à l'initiative privée ; celle-ci, avec des ressources très limitées, fit des prodiges. Mais il nous plaît de reconnaître que, si les dispensaires qui, de vingt-quatre avant la guerre avaient été portés à près de cent pendant l'occupation, ont pu continuer à fonctionner, si les sanatoria populaires ont pu se maintenir et équilibrer leur budget, c'est grâce à l'intervention généreuse et opportune des pouvoirs officiels auxquels il est légitime de rendre ici hommage.

Intervention de l'Etat.—Le Gouvernement, à l'inspiration de M. le premier ministre Carton de Wiart, ministre de l'Intérieur, et de M. Wauters, ministre de l'Industrie, du Travail et du Ravitaillement, a inscrit au budget de cette année-ci, comme les années précédentes, une somme de 7,000,000 de francs. Cette somme est destinée à couvrir en majeure partie les frais des dispensaires, à fournir un subside par journée d'entretien de malades dans les sanatoria, à organiser l'éducation hygiénique des populations par la propa-

gande inspirée par la Commission Rockefeller, et à soutenir les œuvres de préservation de l'enfance.

Intervention des Provinces.—A côté de l'intervention financière de l'Etat, nous devons signaler l'intention formelle manifestée par les *Autorités provinciales* de s'associer de plus en plus à la croisade antituberculeuse. En maintes circonstances déjà, les *Conseils provinciaux* ont fait preuve d'initiatives fécondes, notamment dans les provinces de Brabant, de Liège et de Hainaut.

Le Brabant a inscrit à son budget un crédit de 500,000 francs en faveur des institutions antituberculeuses existantes ou éventuellement à créer ; de plus, il intervient jusqu'à concurrence de 3 fr. 50 par jour en faveur des communes qui placent à leurs frais leurs tuberculeux dans un sanatorium.

Au budget de la province de Hainaut figure une série d'articles visant le même but, et s'élevant à 151,000 francs.

Dans la province de Liège, les crédits s'élèvent à 363 mille francs ; dans la Flandre Orientale, à 164,000 ; dans le Limbourg, à 20,000 ; dans le Luxembourg, à 15,000 ; dans la province de Namur, à 30,000 ; dans la province d'Anvers, à 50,000 ; dans la Flandre Occidentale dévastée, des interventions sont projetées. Bref, l'on ne peut assez se féliciter de voir combien le désir de participer à la lutte contre la tuberculose est manifeste au sein des autorités provinciales, et combien cet élan est général.

Personnification Civile.—Parmi les difficultés que les œuvres antituberculeuses avaient rencontrées en Belgique lors de la réalisation de leur programme, l'une d'entre elles consistait en l'absence d'existence juridique ; les œuvres d'utilité publique n'étaient pas reconnues officiellement.

La Ligue Nationale, par exemple, association privée, n'ayant pas d'existence légale propre, ne pouvait recevoir de legs ; d'autres sociétés, telles que les Sanatoria populaires de la Hulpe-Waterloo ou de la province d'Anvers avaient dû adopter la forme de "société anonyme" ; d'autres encore, la forme de "société coopérative." Ces raisons sociales ne correspondaient en fait aucunement à leur mission, toute de bienfaisance et de désintéressement,

Cette situation anormale vient heureusement de prendre fin par le vote récent par la législature belge, sur la proposition de M. Vandervelde, ministre de la Justice, de la loi accordant la *personnification civile aux associations sans but lucratif ainsi qu'aux établissements d'utilité publique*.

Nous avons lieu de nous réjouir de l'adoption de cette réforme ; l'assurance d'une existence légale donnera à nos institutions antituberculeuses une stabilité-permanente et le pouvoir de percevoir notamment des dons et des legs leur assurera vraisemblablement dans l'avenir des revenus appréciables.

Conseil supérieur d'Hygiène publique.—Au lendemain de l'armistice, le gouvernement belge, préoccupé à juste titre des ravages causés par la tuberculose sous l'occupation allemande, chargea le *Conseil supérieur d'Hygiène publique* d'établir un *Programme de la Lutte*, qui pourrait lui servir d'orientation dans l'organisation générale de la croisade antituberculeuse.

Ce programme, très vaste et très complexe, dont l'élaboration fut confiée à une commission spéciale, reçut l'approbation de M. le Ministre de l'Intérieur

en octobre dernier. Il ne nous est pas possible de vous soumettre ici les détails de cette organisation, dont la réalisation intéressera les différents ministères du royaume. Qu'il nous suffise de dire que ce projet envisage le problème dans toute son ampleur, et qu'il passe en revue les moyens à employer pour prévenir la tuberculose, pour la traiter et pour maintenir les résultats obtenus. Ces moyens sont : *soit indirects, soit directement dirigés contre la maladie.*

Les moyens indirects comprennent la lutte contre l'alcoolisme, l'ignorance, le manque d'hygiène, la protection des femmes enceintes et de l'enfance, la réglementation du commerce du lait, la ventilation permanente et totale des locaux publics, etc.

Toutefois, le Conseil supérieur d'Hygiène préconise tout particulièrement la réforme de l'hygiène scolaire par l'extension à tous les établissements d'instruction de l'*inspection médicale obligatoire*, par la création du *carnet sanitaire scolaire* pour tous les enfants, par l'organisation d'un service d'*infirmières scolaires*, par l'adoption d'un cours d'*éducation physique*, rationnel et obligatoire dans toutes les écoles, complété par la *fiche scolaire* de développement physique.

L'inspection médicale s'étendra également à tout le personnel des écoles ; des mesures seront prises pour éviter la contamination réciproque.

Habitations ouvrières.—Un chapitre important du programme est consacré à l'*habitabilité* et aux maisons salubres ; la guerre contre le taudis doit être continuée sans merci, malgré les difficultés de l'heure présente. Rappelons à ce sujet que les Chambres législatives belges ont voté, le 11 octobre 1919, une loi instituant la *Société nationale des Habitations et Logements à bon marché*. Cette société a été définitivement constituée le 15 avril 1920. Au 15 mai 1921, c'est-à-dire un an après sa constitution, cet organisme avait agréé 63 sociétés, locales ou régionales, qui avaient souscrit un capital de plus de 82 millions de francs et construit 2,775 maisons ou logements. Ce nombre sera, d'après les projets, doublé pour la fin de cette année.

Mais il ne suffira pas de créer en nombre plus ou moins considérable des habitations salubres à loyer modéré, il sera nécessaire de faire "l'éducation hygiénique" du public en général, et spécialement au point de vue tuberculose. Et nous entrons ainsi dans le nœud même de la question, dans le programme des *moyens directs* à opposer à la maladie.

L'éducation hygiénique des masses se fait actuellement par des conférences, des démonstrations de clichés scientifiques et autres, par la distribution de tracts et brochures dans les écoles et les collectivités.

Au cours de ces derniers mois, il a été distribué par les soins de la Ligue Nationale de nombreux milliers d'exemplaires de la brochure "Rockefeller" rédigés respectivement en langue française et en langue flamande.

Mais un des rôles les plus efficaces dans la prophylaxie est réservé à l'action des "Infirmières Visiteuses" ; celles-ci sont rattachées aux Dispensaires et leur nombre s'est notablement accru pendant ce dernier exercice.

Il est nécessaire que la formation professionnelle et la culture générale de ces infirmières soient parfaites.

Réforme des études d'infirmières.—Signalons à ce propos que le Conseil supérieur d'Hygiène publique vient, à la demande du gouvernement, de tracer un programme complet des réformes concernant les études et le *diplôme légal d'infirmières*. Ce projet prévoit trois années d'études, l'internat pour les élèves, et la délivrance de diplômes conférant le titre soit d'infirmières hospitalières, soit d'*infirmières visiteuses spécialisées*.

Ces dernières recevront un enseignement sociologique.

Auxiliaires sociales.—D'autre part, le Ministère de la Justice vient de créer un diplôme d'*auxiliaire sociale*; le rôle de celle-ci complètera la mission de l'infirmière visiteuse.

Armée.—En ce qui concerne l'*Armée*, les commissions de recrutement et d'appel seront complétées et modernisées, pourvues d'un matériel scientifique suffisant pour établir un dépistage sévère des cas de tuberculose. Les cas suspects sont envoyés dans des centres de triage. Aucun tuberculeux ne peut être admis dans l'armée; le soldat reconnu tuberculeux est envoyé d'office dans un sanatorium et licencié, après sa cure. Rentrant dans la vie civile, il est dirigé vers le dispensaire de la région.

Au cours de cette dernière année, le Conseil supérieur d'Hygiène publique, à la demande des pouvoirs compétents, a adopté un projet de *carnet sanitaire militaire*. Celui-ci a reçu l'approbation de M. Devèze, ministre de la Défense nationale.

Au point de vue spécial qui nous occupe, il n'est pas douteux que l'existence de ce carnet aura les plus heureuses influences sur la santé du soldat; il permettra notamment le dépistage précoce de la tuberculose parmi les recrues et les incorporés, leur exclusion ou leur traitement en cas de tuberculose confirmée, le développement physique et le contrôle sanitaire régulier de tous les soldats.

Au point de vue curatif, il est nécessaire de mettre à la disposition des classes laborieuses et de la petite bourgeoisie :

- 1° Des sanatoria de cure pour enfants et pour adultes, à ériger selon les indications, soit à la mer, soit à la campagne, soit à la montagne;
- 2° Des établissements pour les cas chroniques incurables;
- 3° Des pavillons spéciaux à annexer aux hôpitaux existants pour les cas les plus graves.

La question du traitement des *tuberculeux chroniques incurables* est celle qui a la plus d'importance, c'est celle qui est la plus difficile et la plus urgente à résoudre à cause du nombre des malades, de leur dissémination dans la population, et de leur capacité de contagion au cours d'une existence souvent longue.

Il y a lieu de diviser ces tuberculeux chroniques selon l'évolution de la maladie, en deux catégories :

- 1° Les tuberculeux chroniques invalides
- 2° Les tuberculeux chroniques plus ou moins valides.

Pour les premiers, le séjour au sanatorium-hospice s'impose d'une façon permanente, à moins que l'isolement à domicile ne puisse être réalisé parfaitement par l'intervention des dispensaires,

Pour les tuberculeux chroniques partiellement valides, la capacité de travail n'est pas anéantie, elle n'est que réduite, mais elle doit être adaptée médicalement à l'état de santé du sujet.

Pour ceux-ci le Conseil supérieur d'hygiène préconise la création de :

Colonies populaires de travail.—Celles-ci comprendraient une série d'habitations hygiéniques à loyer modéré, situées à la campagne, réalisant le "home-sanatorium" où le tuberculeux pourrait vivre en famille.

A ces colonies seraient annexées des écoles de métiers salubres, des ateliers d'apprentissage; le travail y serait rémunéré. Ces colonies pourraient accueillir également les anciens tuberculeux qui ont fait une cure efficace dans un sanatorium, mais qui doivent changer de profession.

Tels sont, Messieurs, dans les grandes lignes, les efforts qui ont été réalisés en Belgique depuis un an, par les pouvoirs publics et les différentes œuvres antituberculeuses; telles sont également les mesures préconisées pour compléter ces efforts de la façon la plus immédiate et la plus pratique.

STATUT LÉGAL.

Il importe, toutefois, au point de vue du succès qui doit couronner l'activité de toutes ces initiatives, qu'une cohésion complète, une inter-pénétration réciproque s'établisse entre ces différents organismes; une *unité de direction*, représentative de tous les intérêts en cause, doit en être la conséquence légitime.

Tout nous fait espérer la réalisation prochaine de ce desideratum par le vote, par les Chambres législatives, d'un projet de loi qui dans un *statut légal*, en consacrerait l'autorité et l'avenir.

CANADA.

By DR. ROBT. E. WODEHOUSE,

Secretary, Canadian Association for the Prevention of Tuberculosis, Ottawa.

IN the Federal field there is a non-Governmental body—the Canadian Association for the Prevention of Tuberculosis—whose present special activity is the assisting in the establishment of diagnostic clinics, properly manned as to medical *personnel* from the staffs of sanatoria, so as to make recognition of cases in an earlier stage of development possible, these diagnostic clinics to be provided with follow-up nursing staff from the municipal public health or school nursing *personnel*. Finally another function is that of bringing sanatorium discharge cases into this scheme for medical and home supervision.

The official or Governmental agencies.—The Federal Department of Health has extended its medical immigration service to Europe to make more leisurely and perfect examination of prospective immigrants. The Agricul-

tural Department has made marked progress in its campaign for classified herds of cattle, certified after three years tuberculin testing, every six months, all positive re-actors being separated out, as found, for disposal according to condition. Lastly, the medical branch of the Soldiers' Civil Re-establishment has within twelve months had a Commission of Tuberculosis Medical Experts make a most exhaustive survey of twenty-six sanatoria, and report upon Canada as a whole, in so far as its machinery exists and functionates at present, and the Commission recommended development of programme to meet the further requirements deemed necessary, to hopefully deal with the tuberculous. Printed summary is obtainable from Dr. Wm. Arnold, the Medical Director, Ottawa, Canada. The specialist in charge of tuberculosis is devoting his energies at the moment to stimulating the provision of suitable sheltered employment for the tuberculous throughout Canada.

In Nova Scotia, the Massachusetts Halifax Health Demonstration, the Provincial Red Cross Caravan visiting most remote rural districts, with medical staff and publicity, as well as clinic accommodation, and finally the manning of the Provincial Board of Health Districts with officers, mark Nova Scotia's recent field activities, and the erection of a tuberculosis hospital in Halifax provides city accommodation, relieving the Provincial Sanatorium at Kentville.

New Brunswick completed a well-organised publicity drive under the direction of the Ministry of Health last year, and along with the efficient Provincial Health Department field organisations, is progressing.

Quebec Superior Board of Health has a division of tuberculosis, and is training Church sisters and other nurses for the special field of tuberculosis work in the homes and communities. The numbers are large, and in a short time their influence should be evident. This year two railway carriages were equipped for exhibit and housing of a staff of twelve health experts, and visited nearly forty centres of population for educational and survey purposes.

Ontario has been rapidly extending the Public Health Nurse agencies. The Provincial Board of Health have a staff of twenty, including eight provided by the Red Cross Society—who man a health special motor-van clinic and eight districts, covering the entire Province for demonstration purposes. Many municipalities have appointed Public Health nurses as a result of this programme, and health centres, usually including chest diagnostic clinics, are established as a result of the nurses' appointment. The Provincial Department of Education have a medical director and four medical assistants, each having a nurse. Under his instruction they are increasing the number of school nurses for inspection of pupils throughout the Province.

Manitoba has a division of Public Health Nursing, and fifty-four Public Health nurses in the rural field, working. They operate under the entire direction of the Provincial Department of Health, and do the school work as well as public health work. One hundred nurses will occupy effectively

the entire field—one to every 1000 pupils. Every medical student in Manitoba has to do one month's Sanatorium duty.

Saskatchewan has appointed a Commission, now sitting, to investigate and recommend a complete tuberculosis programme, institutional and field, to be financed by a levy on the entire Province. This is the most progressive step yet taken in Canada, and part of scheme to be recommended will be in operation in nine months.

Alberta has erected a provincial sanatorium and has developed an excellent rural hospital scheme.

British Columbia has now a sanatorium owned and operated by the Government, the Tranquille Institution having been taken over. The Rotary Clinic and Day Camp, organised, built and conducted due to efforts of Rotary Club, is an excellent innovation.

CZECHOSLOVAKIA.

BY DR. HYNEK J. PELC,

Representing the Ministry of Public Health and Physical Education and the National Council of Social Hygiene of Czechoslovakia.

ALTHOUGH an intensive and country-wide fight against the white plague in Czechoslovakia is of recent origin and its accentuation dates from the first days of independence of the new Republic, a considerable progress can be noted in every respect.

The Governmental measures against tuberculosis are concentrated in the Division for Social Pathology in the Ministry of Public Health and Physical Education under the leadership of Dr. F. Hamza, where, besides venereal diseases and alcoholism, tuberculosis forms the chief point of attack. The Ministry is carrying out an extensive tuberculosis survey of the country, which will allow them to face the problems more clearly and concentrate first attention to the weakest points. Besides that the Ministry is making every effort to relieve the financial difficulties of institutions like sanatoria, children's preventoria, hospitals, the provision of which is inadequate up to date, about 750 beds for the population of $14\frac{1}{2}$ millions, and cannot be solved easily because of the high cost of building. The subsidies of the Government are used as a means to bring the institutions to modern standards of management.

The private efforts are represented by the Masaryk League against Tuberculosis, one of the chartered members of the National Council of Social Hygiene, which is the clearing-house of eight most prominent private health agencies. The League has adopted the dispensary policy, and has been able with its couple of thousand members and some three hundred local branches to open over forty tuberculosis dispensaries all over the Republic.

An independent scientific association for the fight against tuberculosis gives the scientific background to the campaign and directs the research in tuberculosis.

The importance of the public health in the fight against tuberculosis is well understood, and a provisional one year's course will be opened at the Prague School of Social Work for girls of high standard of education to be trained as health visitors.

The Ministry of Health has organised already several post-graduate courses for physicians on tuberculosis, and the next will be opened in Prague next autumn.

The League of Red Cross Societies is carrying out a demonstration of a unit for public health education, including tuberculosis, and this unit will be taken over at the end of the year by the Czechoslovak Red Cross.

The recent statistics collected by the Ministry of Health show that the alarming situation which presented itself at the time of the Armistice, when one-fourth of all deaths was caused by tuberculosis and specific death-rates of 1000 per 100,000 were not infrequent, is overcome, and that in the year 1920 the tuberculosis mortality has been lower than 1914, continuing, of course, at a comparatively high level—somewhat around 275 for the country as a whole—for all forms of tuberculosis.

A large part of the reduction is undoubtedly due to the return of normal conditions, but we feel that a considerable part of it is due to the credit of the campaign, which in Czechoslovakia is carried out in the name of its first president, Dr. Masaryk.

DENMARK.

By PROFESSOR KNUD FABER.

IN Denmark the tuberculosis death-rate has in the last decade decreased to such an extent that in this respect Denmark now stands in the foremost rank among the countries remarkable for their low tubercular mortality-rate.

The tuberculosis mortality-rate in the cities of Denmark in 1890 was 30.3 per 10,000, and in 1919 only 11.9 per 10,000. The pulmonary tuberculosis mortality-rate in the Danish cities in 1890 was 22.8 per 10,000, and in 1919, 9.2 per 10,000. The decrease is evident among people of all ages, but it is most pronounced in infancy and after the thirty-fifth year.

The pulmonary tuberculosis mortality of children under fifteen years has decreased from 8.7 per 10,000 during the five-year period 1890-94, to 2.1 per 10,000 in 1915-19. The total tuberculosis mortality of children has decreased from 26.3 to 9 per 10,000 in the same period.

To date no mortality tables of the rural districts have been compiled, but the general trend indicates that the lessening of the mortality-rate there is possibly still more ostensible than in the cities.

The steady decrease of the tuberculosis mortality was only interrupted during the war, but is now continuing again. It is partly explained by the improvement of the hygiene of the population, by the better feeding and housing of the working classes, but especially by the two Danish tuberculosis laws enacted in 1905 :

(1) An Act relating to the provisions necessary to the fight against tuberculosis.

(2) An Act concerning governmental support in the treatment of tuberculosis.

These laws, since their enactment in 1905, have formed the basis for all action against the spread of tuberculosis in Denmark, and although upon three separate occasions (in 1912, in 1918, and in 1919) they have undergone minor revisions and essential augmentation, the original drafts may still be considered as model laws.

According to the resolutions of these, the Government not only contributes to the foundation of the numerous tuberculosis institutions, but, which is of greater importance, donates large sums towards their *upkeep*. For each and every tuberculosis patient who is in stringent circumstances and who is interned in one of the public sanatoria, tuberculosis hospitals, coast hospitals, coast sanatoria or asylums authorised by the State, *the Government pays 75 per cent. of all expenses incurred in connection therewith.* For the duration of the war and its attendant and ensuing period of excessively inflated values, the Government and the municipalities jointly made subscriptions of unusual liberality, that the patients should not be burdened by any additional pecuniary obligations caused by the prevailing high cost of living. On behalf of those in literal poverty, the municipality of which the patient is a constituent meets the remaining 25 per cent. of the fees. This aid is not classed under the somewhat humiliating category, "*relief to the poor,*" upon the acceptance of which in Denmark a citizen forfeits his right to vote. *Thus it will be seen that the inability to pay does not prohibit any sufferer from admission to one of the institutions designated by the law, and it is also interesting to note the significant and consistent fact that no assistance rendered at the public expense toward the support of a family during the bread-winner's confinement in a hospital or sanatorium is termed or considered as "relief to the poor."* Besides these economic policies, the laws contain a number of uncompromising prophylactic and hygienic ordinances :

(1) Physicians are required to report all cases of tuberculosis of the lungs or the larynx which come under their observation and jurisdiction.

(2) Women infected with tuberculosis are not permitted to practise as wet nurses.

(3) No home which contains a sufferer from contagious tuberculosis is allowed to receive and care for an outside child.

(4) Children who are infected with contagious tuberculosis may be denied entrance to the schools, and shall be educated under other auspices at the public expense,

(5) No teacher may be appointed to the public schools without a medical examiner's certificate, proving that the applicant is free from all tuberculous infection of a contagious nature.

If a teacher contracts the disease and is thereupon dismissed, he receives $66\frac{2}{3}$ per cent. of his former salary as an annual pension, irrespective of the length of his service. These same provisions apply to several other employees and officials whose duties have exposed them to close contact with the public.

If during the time of his military service a soldier exhibits symptoms of tuberculosis, he is sent to a sanatorium at the expense of the war department for one year if necessary, and under extenuating circumstances for a still longer period.

Functioning upon the basis of these laws, there are in Denmark at the present time the following number of organisations recognised by the Government for the treatment of tuberculosis.

	Number of institutions.	Number of beds.
Tuberculosis sanatoria for patients suffering from tuberculosis of the lungs and larynx	15	1368
Hospitals and homes for advanced and acute cases of pulmonary tuberculosis	31	988
Coast sanatoria for children with scrofula, surgical tuberculosis, etc.	12	730

It will then be seen that there are 58 institutions with altogether 3086 beds. Thirteen of these (namely 8 tuberculosis and 5 coast sanatoria, with a total of 1052 beds) are under the management of the National League against tuberculosis. Estimating the population of Denmark at approximately 3,000,000, *the ratio is one bed to every thousand inhabitants.*

For the duration of the patient's treatment at an institution, the greater portion of the expenses entailed are supplied from public funds; but automatically with the patient's discharge from the hospital this source of support is withdrawn. In the event of actual want, private philanthropies then give monetary assistance to the convalescent. This is accomplished through the medium of the local branches of the National Association which are established throughout the country, through like charitable federations, or through the tuberculosis *dispensaries* ("dispensaires") which have been founded by the National Association in the larger cities, especially in Copenhagen. To the upkeep of these the Government contributes one-third, provided the local municipality donates the second third, so that only one-third remains to be obtained from private resources. Through the agency of the dispensaries the National Association also makes an effort to *protect healthy children from homes in which contagious tuberculosis exists*, by placing them in the care of private families which are under the supervision of a board elected to that purpose, in other desirable environments, or in children's homes, the manifest desire being as far as possible to prevent the child's return home for as long as any danger of contagion continues. In the rural districts of Denmark no real dispensaries could be made, but there

is a large number of especially *trained nurses*, who share with the physician in charge the execution of the duties of the dispensaries.

Lastly, there have been instituted throughout the country *diagnosis laboratories* where physicians are given the privilege of gratis examination of their patients' sputum specimens.

A battle waged upon so large a scale demands great expenditure.

The totals furnished by the Government are as follow :

For the fiscal year . . .	1915-1916	Kr. 1,627,564
" "	1916-1917	1,688,308
" "	1917-1918	1,878,667
" "	1918-1919	2,278,349
" "	1919-1920	4,105,222

It will be seen that the donation for the fiscal year 1919-1920 exceeded one krone (about one shilling) per capita.

In the Danish tuberculosis scheme the main stress has been laid on the institutional unity. A great importance is given to the hospitals and sanatoria, and especially to the hospitals and homes for advanced and acute cases. These hospitals are rather small, about 20 to 30 beds each, and they are spread over the whole country; in all they count about 1000 beds. They seem to be very useful in the fight against the prolonged and massive infection in the homes and in protecting the children from such infection.

FRANCE.

PAR MM. LÉON BERNARD ET G. POIX.

AVANT la guerre les organismes de lutte antituberculeuse en France vivaient pour ainsi dire isolés et leur action ne s'exerçait pas suivant un programme uniforme et méthodiquement appliqué; il en résultait que les efforts de l'initiative privée et des pouvoirs publics étaient le plus souvent incoordonnés. Pendant et depuis la guerre, le vote de deux lois qui introduisaient pour la première fois le mot de tuberculose dans la législation française, la loi Léon Bourgeois sur les dispensaires et la loi Honnorat sur les sanatoriums, ainsi que l'action concertée de la Commission Américaine de Préservation antituberculeuse de la Fondation Rockefeller et du Comité National de Défense contre la Tuberculose, ont contribué à la coordination de tous les efforts et au développement de nombreux organismes antituberculeux créés sur le principe fondamental de la prophylaxie.

Ces organismes, sous l'égide du Comité National, avec le concours des Organisations départementales, sont les Dispensaires, les Écoles d'Infirmières Visiteuses, les Œuvres de Préservation de l'Enfance, les Sanatoriums de Cure, les Écoles de Rééducation professionnelle, les Hôpitaux sanatoriums, les Services Hospitaliers d'Isolement et les Sanatoriums marins; ils constituent par leur ensemble, suivant l'heureuse expression de Landouzy, l'Armement Antituberculeux Français.

LE COMITÉ NATIONAL DE DEFENSE CONTRE LA TUBERCULOSE.

Le Comité National, présidé par M. Léon Bourgeois, comprend un Conseil de Direction de 60 membres, qui compte les personnalités médicales, administratives et juridiques de tout le pays les plus qualifiées en matière de prophylaxie et de législation sociales avec une Commission Exécutive dont M. Calmette et Léon Bernard dirigent les travaux. Son but n'est pas de créer ou de diriger des œuvres mais de favoriser leur création et leur fonctionnement, en coordonnant les efforts locaux, en aidant l'initiative privée de conseils techniques et, s'il y a lieu, en lui apportant une aide financière. En relation avec les pouvoirs publics, et en particulier coordonnant son action avec celle du Ministère de l'Hygiène, le Comité National est uni par des liens étroits avec les organisations départementales, dont la plupart, et sans doute bientôt toutes, lui sont affiliées.

Organisations Départementales.—Ces organismes qui existent actuellement dans tous les départements, à l'exception de quelques-uns d'entre eux, ont été établis suivant des formules variées mais toujours conformes à la législation antituberculeuse actuelle ; soit des organismes relevant des administrations publiques ; dans les deux cas, ce sont des associations privées en connexion avec les autorités officielles, qui font appel à tous les concours locaux et à toutes les bonnes volontés sans distinction de partis ni d'opinions politiques ou religieuses, rassemblant toutes les initiatives ainsi que les ressources financières du département, ils créent des dispensaires, effectuent le placement des malades et en un mot assurent la création et le fonctionnement des divers instruments de la lutte antituberculeuse. Quelques-unes de ces organisations ont créé un armement très complet ; à cet égard l'effort financier et technique considérable du département de la Seine, dû à l'initiative de son Conseil Général, mérite une mention particulière.

Dispensaires.—Les Dispensaires étaient bien peu nombreux en France avant la guerre. En 1913 on en comptait 46 répartis dans 15 départements, et encore la plupart d'entre eux n'étaient guère que des centres de consultations et de distribution de médicaments. Aujourd'hui, 425 dispensaires existent en France, dont 200 pourvus d'Infirmières visiteuses professionnelles et diplômées. Ces dispensaires sont installés suivant le type Calmette, c'est-à-dire pourvus d'un service médical et social et ont pour but essentiel d'organiser la prophylaxie antituberculeuse et de ne faire qu'exceptionnellement de la thérapeutique. A l'heure actuelle 13 départements seulement ne possèdent aucun dispensaire, 49 en sont pourvus de un à cinq et 11 de cinq à dix ; enfin, il en existe 18 en Seine-et-Oise, 20 dans le Finistère, 24 en Eure-et-Loir ; 33 en Alsace-Lorraine et 43 dans la Seine.

Écoles d'Infirmières-Visiteuses.—Les Infirmières-visiteuses sont formées dans 8 écoles, à Lille, Nantes, Bordeaux, Marseille, Lyon, Strasbourg et Paris : qui en possède deux : l'École de la Glacière et celle du Comité National ; toutes ces écoles fonctionnent suivant des règles communes au point de vue du programme d'enseignement théorique et pratique, de la

durée de la scolarité et des examens. Le développement des dispensaires a été plus rapide que la formation des infirmières visiteuses, si bien qu'à l'heure actuelle un certain nombre de dispensaires ont été obligés de retarder la date de leur ouverture par suite de l'impossibilité de s'adjoindre une infirmière-visiteuse.

Les Œuvres de préservation de l'Enfance.—Elles comprennent les Préventoriiums et le Placement familial ou collectif.

Les *Préventoriiums* sont au nombre de 57 et comprennent au total 3708 lits; ils sont destinés à des enfants non contagieux ayant déjà subi une contamination bénigne; on y admet par priorité les sujets appartenant à des familles dont l'un des membres est tuberculeux; le préventorium remplit ainsi un double but: il soustrait les enfants à la surinfection et s'oppose à l'évolution des lésions initiales qu'ils présentent. La plupart de ces établissements sont destinés aux sujets de la seconde enfance, quelques-uns seulement aux nourrissons ou aux adultes.

Le *Placement familial* prend les enfants sains issus de parents tuberculeux pour les soustraire au milieu contaminé et les placer à la campagne dans des familles saines. Il a été réalisé surtout par l'admirable institution de l'Œuvre Grancher qui comprend actuellement, outre l'Œuvre Parisienne, 27 filiales dans les départements. Il convient d'y ajouter quelques centres de placement créés directement par les organisations départementales, en particulier par le département de la Seine. Le placement familial d'enfants issus de tuberculeux, réservé par Grancher aux sujets de 3 à 12 ans a été récemment étendu aux nourrissons par MM. Léon Bernard et Debré.

Une autre formule de préservation de l'enfance consiste à placer collectivement dans des établissements spéciaux des enfants sains susceptibles d'être contaminés: c'est le *Placement Collectif*. Il a donné lieu à la création d'un nombre restreint d'établissements; on en compte 4 qui comprennent 300 enfants.

Sanatorium de Cure.—Ils constituent l'organe de traitement des tuberculeux curables et en même temps l'école de discipline et d'hygiène de ces malades. Les sanatoriums payants ne se sont guère accrus depuis la guerre. On en compte 14 qui possèdent 443 lits. Il n'en est pas de même des sanatoriums populaires qui comprennent aujourd'hui 4546 lits répartis en 47 établissements. Aux sanatoriums populaires, il convient d'ajouter 10 stations sanitaires relevant du Ministère de l'Hygiène et comprenant 1148 lits destinés aux militaires tuberculeux réformés; ces derniers établissements tendent d'ailleurs à disparaître et se transforment peu à peu en Sanatoriums départementaux.

Au total, les Sanatoriums de Cure comprennent 6137 lits qui se répartissent en 71 établissements.

Écoles de Rééducation professionnelle.—Pour consolider les résultats obtenus par la cure sanatoriale et afin de permettre au tuberculeux à sa sortie du sanatorium de travailler utilement pour lui et pour la société, des Écoles de rééducation professionnelle ont été créées. On en compte 8 comprenant 605 lits dont la plupart sont destinés aux militaires réformés

qui sont initiés aux divers travaux de l'agriculture afin de leur permettre de s'orienter vers la vie rurale.

Hôpitaux sanatoriums.—Les Hôpitaux Sanatoriums sont des établissements, construits à proximité des villes, qui reçoivent toutes les catégories de tuberculeux ; on y fait de la cure sanatoriale ; ils rendent de plus grands services au point de vue social que les sanatoriums de cure et il y a lieu d'en favoriser la création ; on en compte 14, comprenant un total de 2884 lits.

Services hospitaliers d'isolement.—L'isolement hospitalier des tuberculeux dans les villes a été réalisé de plusieurs manières, soit dans des salles spéciales, soit dans des pavillons spéciaux, mais dans tous les cas ces services reçoivent trois catégories de malades : ceux en cours de poussée évolutive, ceux qui ont besoin d'être observés pendant un certain temps en raison de la difficulté du diagnostic de leur affection, et enfin les malades graves qui ne peuvent être soignés chez eux. Il est regrettable de constater que dans la plupart de nos hôpitaux cet isolement n'est pas réalisé ; en effet, on ne constate de services d'isolement de tuberculeux que dans 28 départements, comprenant seulement 3942 lits.

Sanatoriums marins.—Sur les côtes françaises, baignées par deux mers, s'échelonnent 44 Sanatoriums marins, qui comprennent 8148 lits destinés particulièrement aux enfants atteints de tuberculose externe ; ils y bénéficient de l'héliothérapie et de l'aérophérapie en climat marin.

Ils peuvent être groupés en trois zones dont les indications sont différentes, celle de la Manche, et de la Mer du Nord, celle de l'Atlantique et enfin la Zone Méditerranéenne.

Hôpitaux du Service de Santé de l'Armée et de la Marine.—Le Service de Santé de l'Armée n'est point resté indifférent aux leçons de la guerre. Il a créé 5 hôpitaux Sanitaires destinés aux militaires atteints de tuberculose pulmonaire qui comprennent 660 lits, dont les uns fonctionnent comme services hospitaliers urbains et les autres comme de véritables sanatoriums de cure.

Il a en outre organisé 8 Hôpitaux militaires pour tuberculose chirurgicale qui comprennent 731 lits.

Enfin, pour ne rien omettre, notons que le Service de Santé de la Marine a créé 300 lits pour tuberculeux dans 3 de ses hôpitaux.

Tel est, rapidement esquissé, le schéma de l'Armement Antituberculeux Français ; le souci de l'exactitude nous fera pardonner l'aridité des chiffres.

En résumé, les tuberculeux peuvent être dirigés, des 425 dispensaires qui fonctionnent sur le territoire français, dans 214 établissements, possédant 27,515 lits, sans compter les ressources du placement familial. Malgré que ces réalisations soient encore insuffisantes et que ces organismes aient besoin d'être multipliés et perfectionnés, il est réconfortant de mesurer le chemin parcouru depuis la guerre, grâce à la coordination des efforts de l'initiative privée et des pouvoirs publics.

GREAT BRITAIN.

AN outline of the existing anti-tuberculosis organisation up to 1920 was submitted to the International Conference in Paris by Sir Robert Philip and was published in the report of that Conference. All that is necessary on the present occasion is to bring the various statistics up to date. This is done briefly in the following paragraphs.

It seems desirable thereafter, on the present occasion, to add a review of the voluntary activities of the National Association for the Prevention of Tuberculosis from its foundation in 1898 to the present year.

DETAILS OF OFFICIAL ANTI-TUBERCULOSIS ORGANISATION UP TO JULY, 1921.

In England and Wales during the year 1920, notification was made of 73,332 cases of tuberculosis, and there occurred 42,545 deaths from tuberculosis.

Tuberculosis schemes which have been established on a common pattern (as detailed in Sir Robert Philip's report last year), include :

341 Tuberculosis Officers.

412 Tuberculosis Dispensaries.

18,000 beds for tuberculous patients in sanatoria and hospitals.

3,500 beds in preparation.

In Scotland, during the year 1920, notification was made of 12,268 cases of tuberculosis, and there occurred 6,042 deaths from tuberculosis.

Tuberculosis schemes include :

78 Tuberculosis Officers.

29 Tuberculosis Dispensaries.

3,232 beds for tuberculous patients in sanatoria, hospitals, etc.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

A REVIEW, 1898 TO 1921.

FOREWORD.

IN view of the approaching Conference of the International Union against Tuberculosis, to be held in London, under the auspices of the National Association for the Prevention of Tuberculosis, the Council think it is a fitting opportunity to recall the work which the Association has accomplished since its inception.

INCEPTION IN JUNE, 1898.

At a private meeting of some members of the medical profession, held in London on June 22nd, 1898, it was agreed that a public movement should be inaugurated with the purpose of preventing the ravages caused by tuberculosis in the United Kingdom. An organising committee was

entrusted with the formulation of a plan for the foundation of a society having this object. Sir William Broadbent was nominated Chairman of this Committee, Mr. (now Sir) Malcolm Morris, Treasurer, and Dr. (now Sir) StClair Thomson, Honorary Secretary.

Such was the origin of the National Association for the Prevention of Tuberculosis.

Its objects were declared to be :

- (1) To educate the public as to the means of preventing the spread of consumption from those already suffering from the disease.
- (2) To extinguish tuberculosis in cattle.
- (3) To promote the erection of sanatoria for the open-air treatment of tuberculous disease.

THE PRINCE OF WALES'S INTEREST.

The Association was launched at a private meeting held on the invitation of and under the presidency of H.R.H. The Prince of Wales, K.G. (afterwards King Edward VII), at Marlborough House on December 20th, 1898. A large and distinguished gathering attended, and speeches were given by H.R.H. The Prince of Wales, the Marquis of Salisbury, the Earl of Rosebery, Sir William Broadbent, Dr. T. Grainger Stewart, Sir John W. Moore, Sir James Sawyer, Sir Samuel Wilks, Prof. McFadyean, Mr. Walter Long, M.P., etc.

Sir William Broadbent outlined the proposed policy of the Association. The mission of the Association was to carry into every dwelling in the land an elementary knowledge of the modes in which consumption is propagated, and of the means by which its spread may be prevented, and thus to strengthen the hands of medical men throughout the country who are dealing with individual cases of the disease.

At the conclusion of the meeting the following resolution was passed unanimously :

This meeting desires to express its approval of the effort which is being made by the "National Association for the Prevention of Consumption and other Forms of Tuberculosis" to check the spread of the diseases due to tubercle, and to promote the recovery of those suffering from consumption and tuberculous disease generally. It also commends the method adopted by the Association of instructing public opinion and stimulating interest rather than the advocacy of measures of compulsion.

FIRST GENERAL MEETING.

The First General Meeting of the Association was held at 20, Hanover Square, W., on May 4th, 1899, with the Earl of Derby, K.G., in the Chair, when the following statement of the objects and methods was adopted :

- (1) The education of public opinion and the stimulation of individual initiative.
- (2) The influencing of Parliament, county councils, boards of guardians, chambers of agriculture and other public authorities in matters relating to the prevention of tuberculosis.
- (3) The establishment throughout the Kingdom of local branches of the Association, to be affiliated to the Central Office.

In the education of public opinion the following methods were indicated :

- (a) A central office for the collecting and distributing of information as to modes of diffusion of tuberculosis, and measures for prevention.
- (b) The circulation of pamphlets and leaflets, setting forth in plain language the results of scientific investigation of above points.
- (c) Public lectures by men approved by the Council; addresses at congresses and other public gatherings.
- (d) Co-operation of the public press.
- (e) Periodical congresses and the issue of an annual report.
- (f) The promotion of the establishment of open-air sanatoria for tuberculous patients.

A Central Office was taken at 20, Hanover Square, W.

The following were elected First Members of Council :

Sir William Broadbent, Bart., M.D.,
F.R.S.
Sir James Blyth, Bart.
Sir George T. Brown, C.B.
Sir James Crichton Browne, M.D., F.R.S.
Sir John T. Brunner, Bart., M.P.
Sir Alexander Christison, Bart., M.D.
Sir Ernest Clarke.
Prof. W. H. Corfield, M.D.
F. W. Burton-Fanning, M.D.
Robert O'Brien Furlong, Esq.
Sir George Wyndham Herbert, G.C.B.
G. A. Heron, M.D.
Alfred Hillier, M.D.
Constantine Holman, M.D.
Sir Edward Hulse, Bart.

John Langton, Esq., F.R.C.S.
Prof. John McFadyean, M.B., C.M.
Hector W. G. Mackenzie, M.D.
Right Hon. Sir Herbert Maxwell, Bart.,
M.P., F.R.S.
Isambard Owen, M.D.
Hon. Cecil T. Parker.
R. W. Philip, M.D.
James Pollard, Esq., J.P.
Vivian Poore, M.D.
Arthur Ransome, M.D., F.R.S.
C. Rube, Esq.
Harold Swithinbank, Esq.
Dawson Williams, M.D.
Sir Frederick Wills, Bart.

Mr. Malcolm Morris was elected Treasurer and Dr. StClair Thomson Honorary Secretary.

The Association is fortunate in still having Sir Robert Philip, Sir StClair Thomson and Dr. Hector Mackenzie as Members of Council.

It was announced at the First General Meeting that H.R.H. the Prince of Wales had been graciously pleased to accept the office of President of the Association, a post which he retained until his death in 1910.

At the First Council Meeting held after the General Meeting Mr. Alfred de Rothschild was unanimously elected Treasurer with Mr. Malcolm Morris.

Representative Vice-Presidents were also elected and a General Committee.

BRITISH CONGRESS ON TUBERCULOSIS.

Following a Congress on Tuberculosis held in Berlin in 1899, which was attended on behalf of the Association on the nomination of H.R.H. The Prince of Wales by Dr. Hermann Weber, Dr. Hillier, Mr. Rube and Mr. Malcolm Morris, it was proposed that a Congress should be held in London in 1901.

The Prince of Wales approved of the project, and consented not only to become President of the Congress, but to open it in person.

A preliminary meeting was held on December 18th, 1899, in the Hall of Gray's Inn for the purpose of formulating the necessary organisation and enlisting the co-operation of other institutions in the undertaking. Invitations to the meeting were sent to the principal medical, sanitary, educational and agricultural authorities throughout the country as well as to Lords Lieutenants of counties, chairmen of county councils, etc. The meeting was large and representative, and resolutions were passed in favour of holding a British congress, to which representatives from India and all dependencies of the Empire should be invited and also selected guests from other countries.

An Organising Council was appointed with the Earl of Derby as President, Sir William Broadbent as Chairman, Mr. Malcolm Morris as Honorary Secretary-General, Lord Avebury and Sir James Blyth as Treasurers, and Dr. StClair Thomson as Honorary Foreign Secretary.

Every possible assistance was received from the Foreign, Colonial and India Offices.

The Minister of Foreign Affairs, Lord Lansdowne, not only undertook to forward letters of invitation to the respective governments in Europe and America, but added that "an intimation will at the same time be given that, although the Congress is not promoted by Her Majesty's Government, they take a great interest in the objects for which the Congress is summoned and would learn with pleasure that the invitation had been accepted."

Mr. Chamberlain, as Secretary of State for the Colonies, forwarded invitations under his covering despatch to all the Colonies and dependencies of the Empire.

The India Office likewise forwarded invitations to the Presidencies and States of India.

The Congress, originally fixed for April 22nd, 1901, was postponed to July 22nd on account of the death of Her Majesty Queen Victoria in January, 1901. On the accession of H.R.H. The Prince of Wales to the Throne it was intimated that although His Majesty would be unable to take any part in the opening ceremony, he was graciously pleased to be patron of the Congress. H.R.H. The Duke of Cambridge, K.G., kindly undertook to fill the office of President of the Congress and preside at the opening meeting, which was held in St. James' Hall.

The work of the Congress was divided into four sections:

- (1) State and Municipal.
- (2) Medical, including climatology and sanatoria.
- (3) Pathology, including Bacteriology.
- (4) Veterinary (tuberculosis in animals).

A Museum of Pathology, Bacteriology and Public Health was arranged in the (Small) Queen's Hall.

The Congress was attended by 3553 people as follows:

Delegates.

British delegates (appointed by universities, hospitals, societies of all kinds, public bodies, etc.)	754
Indian and Colonial delegates (appointed by their respective Governments, etc.)	31
Foreign delegates (appointed by their respective Governments, universities, etc.)	164

Members.

British, Colonial and Foreign members	2,604
	<hr/> 3,553

The United Kingdom was well represented by every public body which was conceivably interested in the subject of tuberculosis.

The following countries sent delegates :

Australia, New Zealand, Bermuda, British Guiana, Canada, India, Jamaica, Malay States, Newfoundland, South Africa, Straits Settlements ; and the following countries were represented : America, Austria, Belgium, Bulgaria, Denmark, France, Germany, Greece, Holland, Hungary, Italy, Monaco, Norway, Portugal, Roumania, Spain, Sweden and Switzerland.

At the general meetings of the Congress addresses were given by distinguished scientists, and a number of important papers were read in the Sections.

The first address was delivered at St. James's Hall by Prof. Robert Koch (Berlin), the discoverer of the *Bacillus tuberculosis*, which, in the words of Lord Lister, F.R.S., who was in the chair, constitutes the only reliable basis on which preventive measures against tuberculosis rest.

The whole world was stirred by the startling thesis propounded by Prof. Koch, in which he asserted that human tuberculosis differed from bovine tuberculosis and that human tuberculosis could not be transmitted to cattle, and similarly, that bovine tuberculosis is incapable of development in man.

It was pointed out by Lord Lister that if this conclusion was correct, the task of preventing tuberculosis would be greatly simplified, but on the other hand, it would be a serious and grievous matter if the measures for providing a pure milk supply were to be relaxed.

Discussion followed in the medical and lay press throughout the world.

Previous to the Congress there appeared to be unanimity among scientific authorities as to the identity of the bacillus found in human and bovine tuberculosis, and as to the possibility of tuberculosis being communicated to man through the consumption of tuberculous milk and meat. There were admittedly differences of opinion as to the frequency with which infection from milk and meat occurred, but great prominence had been given to the possible conveyance of tuberculosis by milk and meat. Two Commissions had considered the subject and had agreed as to the existence of danger from the ingestion of tuberculous matter from bovine sources.

The great prominence thereby given to this view had apparently conveyed to many of the general public the idea that bovine tuberculosis

was the chief source of human tuberculosis; they had insufficiently grasped the primary fact that in the great majority of cases infection is transmitted from man to man.

Prof. Koch's statement therefore caused consternation, and in view of the results of his observations it was evident that the whole subject of the relation of bovine and human tuberculosis must be reconsidered.

The second address was delivered by Prof. Brouardel, the D  an of the Faculty of Medicine of the University of Paris and Chief Medical Adviser of the French Government, one of the greatest living authorities on sanitary matters. The address dealt with the history, mortality, legislation, preventive measures, etc., adopted by different nations in the prevention of tuberculosis.

The third address was delivered by Prof. John McFadyean, M.B., F.R.C.V.S., of the Royal Veterinary College. The subject of Prof. McFadyean's address was "Tubercle Bacilli in Cow's Milk as a Possible Source of Tuberculous Disease in Man." He opposed Prof. Koch's statement, and hoped legislation as regards milk and meat would not be relaxed. His experience went to show that Prof. Koch was entirely wrong, in which he had the support of Prof. Nocard (France), Prof. Bang (Denmark), Prof. Crookshank and Prof. Sims Woodhead.

At the conclusion of the meeting a resolution was passed as follows:

That in view of the doubts thrown upon the identity of human and bovine tuberculosis, it is expedient that the Government be approached and requested to institute an immediate inquiry into this question, which is of vital importance to the public health and of great consequence to the agricultural industry.

At the final meeting of the Congress, the Earl of Derby in the chair, the following resolutions were passed:

(1) Tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man; indiscriminate spitting should therefore be suppressed.

(2) It is the opinion of this Congress that all hospitals and dispensaries should present every out-patient suffering from phthisis with a leaflet containing instructions with regard to the prevention of consumption and provide and insist on the proper use of a pocket spittoon.

(3) That the voluntary notification of cases of phthisis attended with tuberculous expectoration and the increased preventive action which it has rendered practicable have been attended by a promising measure of success, and that the extension of notification should be encouraged in all districts in which efficient sanitary administration renders it practicable to adopt the consequential measures.

(4) That the provision of sanatoria is an indispensable part of the measures necessary for the diminution of tuberculosis.

(5) That in the opinion of this Congress, in the light of work that has been presented at its sittings, medical officers of health should continue to use all the powers at their disposal, and relax no effort to prevent the spread of tuberculosis by milk and meat.

(6) That the educational work of the great National Association for the Prevention of Tuberculosis is deserving of every encouragement and support. It is through such agency that a rational public opinion may be formed, the duties of public health officers made easier of performance, and such local and State legislation as may be requisite called into existence.

(7) That this Congress is of opinion that a permanent International Committee should be appointed—(a) to collect evidence and report on the measures that have been adopted for the prevention of tuberculosis in different countries; (b) to publish a popular statement of these measures; (c) to keep and publish periodically a record of scientific research in relation to tuberculosis; (d) to consider and recommend measures of prevention.

(8) That in the opinion of this Congress, overcrowding, defective ventilation, damp and general insanitary conditions in the houses of the working classes diminish the chance of curing consumption, and aid in predisposing to and spreading the disease.

(9) That while recognising the great importance of sanatoria in combating tuberculosis in all countries, the attention of Government should be directed to informing charitable and philanthropic individuals and societies of the necessity for anti-tuberculosis dispensaries as the best means of checking tuberculous diseases among the industrial and indigent classes.

(10) That the following question be submitted for the consideration of the next Congress on Tuberculosis: The constitutional conditions of the individual which predispose to tuberculosis, and the means by which they may be modified.

At the close Prof. Brouardel congratulated the members of the Executive Committee of the Congress, in the name of the foreign delegates, on its great success, and thanked them for their friendly reception, which would always be remembered.

In the name of the French President, Prof. Brouardel extended an invitation to hold the next Congress on Tuberculosis in Paris in two or three years' time, and begged that Lord Derby, who had so ably directed the preparations for the British Congress, would be gracious enough to accept the office of President of a committee of Englishmen willing to participate in the Paris Congress—a request which Lord Derby acceded to with great pleasure.

Sir James Crichton Browne spoke of the work of the Congress which had been carried out by the National Association for the Prevention of Tuberculosis. He summed it up in one word—"enlightenment": enlightenment of our towns and dwellings, of our slums and hovels—for with the sunshine comes fresh air, and before the combined forces disease-breeding bacteria fly away; enlightenment of the minds of the people, so that prejudice and ignorance gave place to an intelligent and rational knowledge of the causes of disease, and of the means by which they may be removed and counteracted.

The social side of the Congress was not overlooked.

An influential Reception Committee was formed, under the presidency of the Countess of Derby.

Receptions and banquets were given by the Earl and Countess of Derby, the Lord Mayor of London and the National Association for the Prevention of Tuberculosis; garden and river parties and other functions were arranged for the Foreign and British delegates.

The Congress was brought to a close at a banquet at the Hotel Cecil on the evening of July 24th, given in honour of the Foreign, Indian and

Colonial Vice-Presidents and delegates. There were about 250 members present and the Chair was taken by the Earl of Derby.

The following representatives of the different countries spoke:

Austria (Prof. Von Schrötter), Belgium (Dr. George Martin), Bulgaria (Dr. Mikailovsky), Denmark (Prof. Bang), France (M. Félix Voisin), Germany (Prof. Dr. Gerhardt), Holland (Prof. Pol), Hungary (Dr. Reis), Italy (Prof. Cervello), Norway (Prof. Malm), Portugal (Dr. de Lancastre), Roumania (Dr. J. Cantacuzieno), Spain (Señor Don José Verdes Montenegro), Sweden (Dr. Klas Linroth), Switzerland (Dr. Secretan).

The foreign delegates, accompanied by the Earl of Derby, Sir William Broadbent, Prof. Clifford Allbutt, Mr. Malcolm Morris and Dr. StClair Thomson, were received by His Majesty the King in the Throne Room at Marlborough House on July 25th. Each delegate was presented to the King by Lord Derby.

The Transactions of the Congress were published afterwards in four volumes.

OUTCOME OF THE BRITISH CONGRESS ON TUBERCULOSIS.

One result of Prof. Koch's statement as to the relationship between human and bovine tuberculosis and of the resolution passed at the close of the Congress was that research was greatly stimulated, leading in this country to the appointment of a Royal Commission on Tuberculosis (Human and Bovine) on August 31st, 1901, to inquire and report with respect to tuberculosis:

- (1) Whether the disease in animals and man is one and the same.
- (2) Whether animals and man can be reciprocally infected with it.
- (3) Under what conditions, if at all, transmission of the disease from animals to man takes place, and what are the circumstances, favourable or unfavourable, to such transmission.

The Commissioners were Sir Michael Foster, K.C.B., F.R.S. (Chairman), G. Sims Woodhead, M.D., S. H. C. Martin, M.D., Sir J. McFadyean, Sir Rubert W. Boyce, M.D., E. J. Steegmann, M.D. (Secretary).

This Commission sat until 1912 and issued three Interim Reports, embodying investigations on comparative histology and bacteriology, the pathogenic effect of bovine and human viruses, and the Final Report was published in 1913, signed by Sir W. H. Power, K.C.B., who, on the death of Sir Michael Foster in 1907, was appointed Chairman of the Commission.

The findings of the Commission were opposed to Prof. Koch's theory.

Most generous assistance was given to the Commission by Sir James Blyth, a Member of the Council of the Association, who placed his farm buildings and other accommodation at Stansted in Essex at the service of the Commission. By his generous and public-spirited action the Nation was saved large expenditure.

Two parallel investigations, *i.e.* an investigation into the effects produced in the bovine body by the introduction of the bacillus of human tuberculosis, and an investigation into the effects produced in the human body by the

introduction under similar conditions of the bacillus of bovine tuberculosis, were carried on at two separate establishments.

Mr. Harold Swithinbank, another Member of the Council of the Association, offered to place one of his farms at the disposal of the Royal Commission on Tuberculosis for the purpose of carrying out their experiments, but from its more convenient position, situated midway between Cambridge and London, Stansted was chosen.

Similar commissions were appointed in Canada and Germany.

The Local Government Board for England and Wales issued a circular to Councils of Metropolitan and other boroughs and of urban and rural districts, intimating the appointment of the Royal Commission, and ordering that pending its investigations and report there should be no relaxation in measures for dealing with milk from tuberculous cows and tuberculous meat intended for the food of man. The circular recalled attention to the principles laid down by the Royal Commission on Tuberculosis in 1898. A circular on Tuberculosis was issued by the Local Government Board for Ireland, quoting some of the resolutions passed at the British Congress.

INTERNATIONAL TUBERCULOSIS CONGRESSES.

The next Tuberculosis Congress (International) was held at Paris from October 2nd to 7th, 1905, under the patronage of the President of the French Republic.

The National Association for the Prevention of Tuberculosis co-operated with the officials of the Paris Congress in undertaking the preliminary work in this country. A representative Executive Committee was formed to invite delegates from the various public bodies, universities, etc., to attend.

The Association was represented at the Congress by Sir William Broadbent (Chairman of Council), Sir James Blyth, Sir John William Moore, Mr. Malcolm Morris (Treasurer), Dr. Perkins (Hon. Secretary), Dr. Philip, and Dr. Nathan Raw. Dr. Theodore Williams, another member of the Council, attended as representative of the British Government.

The Sixth International Tuberculosis Congress met in Washington from September 28th to October 5th, 1908. Dr. Theodore Williams and Dr. Philip delivered public addresses, and Dr. Nathan Raw also represented the Association.

The National Association was awarded a silver medal and a certificate for effective national organisation.

The next International Congress on Tuberculosis met in Rome from April 14th to 20th, 1912. The Association acted on behalf of the Congress in getting the meeting known. Sir William Osler, Dr. Philip, Dr. Raw, Prof. Woodhead, Miss Broadbent and Miss McGaw attended as representatives of the Association.

The Council of the Association addressed an invitation to the Congress in Rome asking that the next meeting should be held in London. This

invitation received the hearty support of His Majesty's Government and the British Ambassador in Rome. The invitation was accepted, and it was decided to meet next in London in 1917 under the auspices of the Association.

But the war intervened and the holding of an International Congress was impossible.

INTERNATIONAL TUBERCULOSIS CONFERENCES.

In October, 1902, a Conference was held in Berlin, to which delegates were invited from all civilised countries for the purpose of forming an Association (afterwards called the International Bureau) for the Prevention of Consumption. The constitution of this Bureau provided that delegates should be elected by the National Associations of different countries. The object of the Bureau was to stimulate common action against tuberculosis, as well as to promote a better mutual understanding and good fellowship between countries.

The International Bureau was financed by an International Fund. Afterwards an annual subscription of Five Pounds for each representative was levied, and according to the size of the country the total number was decided. In the case of Great Britain and Ireland the number of representatives was five.

The International Bureau has held meetings in various countries, as follows:

Paris	1903	Philadelphia	1908
Copenhagen	1904	Stockholm	1909
Paris	1905	Brussels	1910
The Hague	1906	Rome	1912
Vienna	1907	Berlin	1913

The next meeting was fixed for Berne in September, 1914, and delegates were appointed, but the war likewise prevented this.

After the Armistice there was a general feeling that the International Campaign against Tuberculosis must be renewed. Accordingly at a meeting in Paris, called in 1920 by the Comité National contre la Tuberculose, an International Union against Tuberculosis was formed, with Monsieur Léon Bourgeois as President, and Prof. Léon Bernard as Secretary-General. The Union continues the International Tuberculosis Conference, which up to 1913 had assembled annually in one or other of the chief cities of Europe or in America, as the above list indicates.

The countries included in this Union are those within the League of Nations, with the addition of the United States of America.

The first meeting of the International Union was held in Paris from October 17th to 21st, 1920, and was attended by delegates from thirty-one countries, Sir Robert Philip and Dr. Nathan Raw being the British representatives.

A draft of the constitution and statutes of the Union were submitted, and after consideration were referred to the next meeting of the Union for further discussion and acceptance.

At the conclusion it was decided that the next International Conference should be held in London under the auspices of the National Association, the arrangements being placed in the hands of an Executive Committee, consisting of representatives of the leading countries, with Sir Robert Philip as Chairman, who will succeed M. Léon Bourgeois as President of the International Union against Tuberculosis.

The date of the London meeting was fixed as from July 26th to 28th, 1921, and the following subjects were chosen for discussion:

- (1) "The Modes of Diffusion of Tuberculosis throughout the Races of the World."
- (2) "The *Rôle* of the Medical Profession in the Prevention of Tuberculosis."

The National Association at the first meeting thereafter unanimously resolved to invite the International Union to regard themselves as guests of the National Association during the Conference.

At the opening meeting the delegates will be welcomed to London on behalf of His Majesty's Government by the Right Hon. the Marquis Curzon of Kedleston, Secretary of State for Foreign Affairs, and by Sir Alfred Mond, the Minister of Health, on behalf of the Ministry.

Public addresses will be delivered by M. Léon Bourgeois, as representative of France, and Col. Bushnell, United States Army Medical Corps, as representative of the United States of America.

The Lord Mayor of London has promised an evening reception at the Mansion House in honour of the International Union on Tuesday, July 26th, and other social functions and visits to institutions of special interest have been arranged.

Everything possible has been done to insure the success of the International Conference.

In honour of the occasion all the members of the Council have been nominated as delegates from Great Britain to the Conference.

PROPAGANDA AND EDUCATION.

After the private meeting in 1898, when it was decided to form an Association for the Prevention of Tuberculosis, a letter was sent to the press indicating its objects and methods. Within a week the (temporary) office was inundated with sackfuls of letters. Within the first few months over a thousand persons joined the Association.

The minimum annual subscription was fixed at five shillings in order that the practical sympathy of all classes of the community could be secured. The life membership fee was five guineas and several hundreds were enrolled.

A Publications Committee was appointed and soon set to work on the compilation of simple leaflets, giving simple instruction regarding the prevention of tuberculosis.

The following is a list of leaflets now in circulation:

- Leaflet No. 1: "How to Prevent Consumption."
 „ „ 2: "Fresh Air and Ventilation."

Leaflet No. 3: "Milk and Tuberculosis."

- " " 4: "Ventilation."
- " " 5: "Food and Health."
- " " 6: "Tuberculosis in School-children."
- " " 7: "Leaflet for those who have been in a Sanatorium."
- " " 8: "Disinfection."
- " " 9: "Hints on the Management of Children from one to five years of age."
- " " 10: "Hints on the Care of Children of School Age."

Besides these leaflets two handbills have been issued, viz.:

- "Rules for Consumptives,"
- "Symptoms of Early Consumption,"

and cards on the—

- "Prohibition of Spitting" (see later under "Spitting"),
- "Ventilation."
- "How to Keep Well."

These publications have had an enormous circulation. They have been bought by public health and other authorities, etc., throughout the country. Some of the leaflets have been translated into Welsh, Gaelic, Dutch and Italian. They have also been adapted for use in India.

The Association has also published Transactions of its own Annual Conferences, eight in number, to which further reference will be made under "Annual Conferences," Handbook of Tuberculosis Schemes (three editions) (see under "Handbook of Tuberculosis Schemes"), Addresses at Annual Meetings, a List of Sanatoria (ten editions), and pamphlets on the Tuberculosis Exhibition and Caravans.

A quarterly journal, 'Tuberculosis,' begun in October, 1899, and edited by Drs. Hector Mackenzie and Alfred Hillier (Members of Council), embraced up-to-date information on tuberculosis. Its chief object was to keep the purpose and work of the Association before the minds of its members, and also to give an account of the activities of the branches of the Association. The journal was supplied free of cost to all members, both of the parent Association and its branches.

Owing to lack of funds and the expenses entailed in publishing the journal it was reluctantly abandoned in June, 1907, the Council feeling that the money could be better spent in other directions. When funds permit the Council hope to revive the journal.

TUBERCULOSIS EXHIBITION.

The attention of the Council was next directed to a very practical method of educating the public by means of Tuberculosis Exhibitions and Caravans. In 1908 the Council decided to organise a Tuberculosis Exhibition, in the hope of further arousing public interest, especially among the poor and less educated classes. Although knowledge in regard to tuberculosis had been widely diffused there had not been a corresponding increase of action.

A committee was formed whose duty it was to arrange the Tuberculosis Exhibition. The Council was glad to avail itself of outside aid in addition to the services of its own members.

The Exhibition was mainly of a popular and educational character, and consisted of diagrams, models, charts and actual specimens illustrating the nature of the disease, the extent of its ravages and the possibility of prevention and cure, as well as the methods to be employed to counteract its spread.

Popular lectures, homely talks and lantern demonstrations were used.

The Exhibition was arranged in the following Sections:

Section 1 ("Extent of Tuberculosis")—the statistical section: The relative mortality from the disease; its decline; its economic importance from its heavy incidence on the working years or prime of life; the conditions favouring its spread—insanitation, overcrowding, poverty and unhealthy occupations—illustrated by diagrams, statistical tables, etc.

Section 2 ("Causation of Tuberculosis")—the pathological section: The tubercle bacillus and its effects on the various organs, demonstrated by photographs, micro-photographs, lantern-slides and actual specimens.

Section 3 ("Where Tuberculosis Lurks"), which contained posters, photographs and models of insanitary, unhealthy, ill-ventilated dwellings and rooms, back-to-back houses, etc.

Section 4 ("How Tuberculosis is Spread") dealt with the modes of actual infection—by coughing, by dust infected from dried expectoration, through the medium of milk, etc.

Section 5 ("How Tuberculosis is Prevented"), the converse of the two preceding sections, contained photographs and models of rooms similar to those in Section 3, rendered clean, sanitary and well ventilated, showing the importance of abundant fresh air, the disinfection of sputa and of infected rooms, the sterilisation of milk, etc. Instructions about food were given in this section.

Section 6 ("How Tuberculosis is Cured") illustrated sanatorium treatment, the working of the dispensary system, and the home treatment by the use of balconies, roofs, shelters, garden tents, etc.

Section 7 was devoted to "Tuberculosis in Children." A special effort was made to make clear the forms of tuberculosis in childhood and their essential unity, in order to refute the popular idea that consumption of the lungs, which is relatively uncommon in childhood, is the only tuberculous disease. Sanatorium and hospital life for tuberculous children was illustrated in order to rouse the interests of the parents as well as the value and mode of working of open-air schools.

Exhibits were sent from leading medical officers of health, and sanatoria and universities. It would be invidious to pick out only a few, but mention must be made of two of the chief features of the Exhibition—a full-size model of part of a ward of the Royal Victoria Hospital for Consumption, Edinburgh, which contained the furniture as used in the ward, and a model on a large scale of an open-air school and its surroundings by Dr. Frederick Rose, L.C.C.

It would take up too much space to give a list of all the Exhibition contained, but it was most comprehensive, embracing all aspects of the subject.

It was decided that the Tuberculosis Exhibitions should be shown

first in one of the most densely populated boroughs of London, Whitechapel in the East End of London being chosen.

Accordingly the Exhibition was opened without charge for admission in the Whitechapel Art Gallery in June, 1909, and was on view for ten days, when it is estimated that over 70,000 people attended.

The Rt. Hon. John Burns, M.P. (President of the Local Government Board), opened the Exhibition, and gave a moving address, which was afterwards printed.

A great feature was the popular evening lectures, illustrated by lantern-slides, which were always crowded, and often followed by animated discussions.

Visits of school children were arranged by permission of the Education Authorities, who came with their teachers. The exhibits, etc., were explained, and the children afterwards wrote competitive essays on their impressions of the Exhibition, prizes being awarded to those of high merit.

A band of voluntary helpers was always in attendance in the different sections, explaining in simple language the objects in the Exhibition. These helpers were carefully coached by the Committee of the Exhibition, and a special leaflet, "The Lessons of the Tuberculosis Exhibition," was widely circulated.

Demonstrations on tuberculous meat were given by a sanitary inspector from the Meat Market at Smithfield.

A prominent feature was made of the Literature Stall, the Association's leaflets having a ready sale.

The Exhibition next went to the White City, Shepherd's Bush, forming part of the main Exhibition, where it remained for some little time. It was visited by crowds of visitors who otherwise might not have had the opportunity of seeing it.

Thereafter invitations for the Exhibition poured in from all parts of the country.

The following is a chronological list of London boroughs and provincial cities and towns where it was shown, together with the number of people who attended it:

Chelsea	12,000	Liverpool	47,000
Paddington	12,000	Edinburgh	15,867
St. Marylebone	9,000	Newcastle-upon-Tyne	22,000
Walworth	8,000	Barnstaple	4,700
West Ham	28,945	Stonehouse	9,000
Barking	13,500	Exeter	14,000
Bermondsey	3,694	Truro	7,550
St. Pancras	6,000	Bodmin	3,000
Kensington (North)	5,830	York	27,440
Islington	18,000	Bolton	37,350
Shoreditch	6,437	Barrow-in-Furness	6,000
Bethnal Green	6,000	Newport (Mon.)	35,000
Cambridge	8,000	Leicester	14,386
Oxford	5,000	Nottingham	28,333
Worcester	5,000	Ipswich	17,000

Bradford	46,000	Manchester	15,550
Carlisle	7,000	Birmingham	30,000
Reading	15,264	Huddersfield	26,614
Glasgow	45,000	Coventry	12,000
Hull	45,000	Gloucester	18,135
Gt. Yarmouth	5,000	Wolverhampton	11,500
Middlesbrough	14,000	Poplar	5,500
Motherwell	5,000	Woolwich	5,500
Wishaw	4,500	Battersca	9,000
Hamilton	6,300	Camberwell	11,500
Coatbridge	6,500	Bury	7,800
Airdrie	4,000	Accrington	11,192
Paisley	15,000	Shrewsbury	12,225
Dundee	27,600	St. Pancras (second visit).	5,985
Aberdeen	39,000	Southport	11,528
Rutherglen	6,000	Preston	20,030
Dunfermline	8,200	Leeds	4,500
Salford	35,000	Oldham	13,660

The Tuberculosis Exhibition was seen for the last time in Oldham in November, 1914, just after the outbreak of war. It was hopeless to arrange visits owing to the national call to more urgent duties. The Exhibition was put into store where it remained until the end of 1920, when it was decided to sell the old exhibits. It was then apparent that an entirely new Exhibition would have to be put together as the exhibits had suffered a good deal. The question of resuscitating it has not been overlooked, as the Council feels that there is still a field of activity for such exhibitions.

TUBERCULOSIS EXHIBITIONS IN THE DOMINIONS, INDIA AND CHINA.

In 1912 Mr. John Burns, M.P., President of the Local Government Board, wrote to the Association to the effect that the Government of Victoria was desirous of showing the Tuberculosis Exhibition of the Association at the Hygiene Exhibition in Melbourne in January, 1913. The Association accepted the invitation, the arrangements being left in the hands of Sir John Taverner, the Agent-General for Victoria, and the Association.

Most of the exhibits of the original Exhibition were copied and sent out to Melbourne and proved very successful, the Premier of Victoria writing in the following terms:

"The Tuberculosis Exhibition shown at the recent Australian Natives' Exhibition at Melbourne was a source of great interest, and has stimulated action in the direction of further preventive efforts, not only amongst local sanitary authorities, but also by individuals.

"Since the close of the Australian Natives' Association Exhibition, to which it was specially lent, the exhibit has been displayed at the City Hall, Prahran, at the Queensland Exhibition, Brisbane, and at the Australian Industrial Exhibition, Ballarat."

After finishing in Australia the Exhibition was claimed for New Zealand, to which the Association agreed.

A similar request was received from the Cape Town Branch of the Association, to which the Council complied with great readiness, and a fresh exhibit was prepared on the same lines as that of Australia, but owing to the war and the difficulties of transit the exhibit was not sent. It was arranged, however, that after the exhibition tour was finished in New Zealand it should be sent to South Africa. A tour was made throughout the whole of South Africa, especially in the districts where miners' phthisis is prevalent. The Council finally presented the exhibits to its Branch in South Africa, which were gratefully acknowledged.

Several applications from various parts of India having been made to the Association asking for advice and the wish to copy its methods, a small exhibition was prepared, adapted for Indian audiences, and proved most useful.

Particulars were sent to China of the essentials of a complete miniature Tuberculosis Exhibition, and an exhibition on the given lines was produced on the spot.

Besides the above formal exhibitions the Association has either lent or contributed exhibits to other exhibitions, including the National Trades' Exhibition, promoted by the Birmingham Hospital Saturday Fund, the International Hygiene Exhibition at Dresden, who made a request that they might be allowed to keep the exhibits prepared by the Association, and to other organisations, *e. g.* National Health Week, Baby Week, etc.

TUBERCULOSIS CARAVANS.

The first Tuberculosis Caravan Exhibition was provided by Sir William Younger, Bart., a Member of Council, in 1911. It was a partial reproduction of the original Exhibition, and made its opening tour through the southern district of Dumfriesshire. The Association was deeply indebted to Mr. Bertram Smith, of Beattock, who was so impressed with the value of such an exhibition for touring in country districts and villages that he presented two caravans, which were fitted up with suitable models, diagrams, charts, etc., adapted for village audiences. Sir William Younger also gave the Association the exhibits which had been prepared for his tour.

The *modus operandi* of these caravans was to move from village to village day by day, the exhibits being taken out and shown in some suitable hall or school-room and demonstrations given by the lecturer. A special feature was the attendance of school children with their teachers, lectures being prepared for them and the exhibits minutely explained. In some instances it formed part of the school curriculum with the sanction of the Board of Education. Essays were written and prizes awarded.

Sometimes the caravan was in the same district as the main exhibition, as, for instance, Glasgow. One of the caravans toured the suburbs of Glasgow for a period of six weeks and was found to be an invaluable means of penetrating the poorer districts, while at the same time it acted as a good advertisement for the main Exhibition. Addresses were given at street corners during the day and in the evening in small halls.

The following is a list of the different districts in Scotland where the caravan has toured :

Dumfriesshire.

Glasgow District.

Eastwards across Scotland, stopping at small towns and villages, as far as *St. Andrews*, where it remained for a week.

Westwards through Kinross, Fifeshire, Stirlingshire to Renfrew and Paisley. At *Paisley* the caravan stopped a week and met the main Exhibition. The lecturer visited the factories in the dinner-hour and addressed the work-people. Afterwards it made its way through the *South-Western counties of Scotland*, visiting among other places *Kilmarnock, Ayr, Troon, Prestwick and Newton Stewart.*

A caravan tour was likewise arranged by the *Lanarkshire Insurance Committee* in August, 1914, twenty-six places being visited.

The following is a list of the counties and districts in England with details where the caravan has toured :

Cumberland.—A tour was arranged under the auspices of the Cumberland County Council and County Education Committee from April 11th to May 29th, 1912. The caravan toured through the greater part of Cumberland, especially in the mining districts, stopping at *Aspatria, Maryport, Workington, Whitehaven, Keswick, Penrith*, and other smaller places. In the six weeks, fifty-five lectures were given, and the total attendance was 6,000 children and 4,000 adults.

South Hampshire.—Through the kindness of Mrs. John Ramsay, of Cams Hall, Fareham, a tour was arranged through *South Hampshire*, which lasted nine and a half weeks, during part of March, April, May, and June, 1912. Several lecturers were in charge.

Gloucestershire.—A tour of six weeks was arranged in 1913 in the *northern and central* part of the county, and much educational work was done in the many villages the caravan passed through.

Nottinghamshire.—Through the kindness of the Hon. Mrs. Handford, President of the Nottingham and Notts Branch of the National Union of Women Workers, a caravan tour was arranged in the spring of 1913. This proved so successful that a second tour was arranged for the *mining districts of Nottinghamshire* in October and November, 1913. Over 11,000 people attended the afternoon and evening lectures and sixty-one lectures were given.

Wiltshire.—A caravan tour was arranged under the auspices of the Wiltshire County Council General Education Committee from September 8th to October 11th, 1913.

East Sussex.—A short caravan tour (March 2nd to 17th, 1914) was made in the *north-eastern part of Sussex*, under the auspices of the East Sussex Insurance Committee and Education Committee.

Shropshire.—An extended tour was made in *Shropshire* in May and June, 1914, forty-two small towns and villages being visited.

Leeds District.—The caravan toured the *Leeds* district for three weeks in July, 1914, at the time of the main Exhibition and the Annual Conference of the Association which were being held in Leeds. As a result the Leeds Insurance Committee was so pleased with the work of the caravan that they decided to arrange for fourteen lectures in various parts of the city.

Smethwick, West Bromwich and Walsall.—The caravans paid a week's visit each to *Smethwick, West Bromwich and Walsall* in June, 1915.

Oldham.—A fourteen days' tour was arranged at the request of the Oldham Health Committee in July, 1915.

Craven District in West Yorkshire.—A fourteen days' tour was arranged in the *Craven District of West Yorkshire* in September, 1916, at the request of the Skipton Insurance Committee. Over 3,000 attended.

Rotherham.—A week's tour (October 1st, 1916) was arranged in the *Borough of Rotherham*, under the auspices of the Rotherham Insurance Committee.

The extension of further work with the caravans was stopped owing to the war and the conditions under which the country had to exist. Many invitations were received, but when the time came to arrange tours in the different districts it was found to be impossible to get the necessary help, the cost of transit and difficulties were overwhelming, and peoples' minds were concentrated on the war.

Since the armistice the caravan has visited *Kent*, under the auspices of the Kent Insurance Committee, for a week in October, 1920.

It is hoped now that the country has returned to a more normal condition that the caravan will find further spheres of usefulness.

The Association, throughout, has been indebted for much of the success of the caravan work to the zealous labours of a succession of capable lecturers.

LECTURES.

Besides the popular lectures in connection with the tuberculosis exhibitions and caravans, a large number of lectures have been addressed by members of Council and others.

When the Association was first inaugurated in 1898, members of Council were particularly active in addressing meetings and were instrumental in the formation of branches.

Lectures have been given at meetings on special points dealing with tuberculosis and allied subjects. It would be impossible to give a complete list of these lectures, but the following is a representative one of some of the bodies, public and otherwise, who have asked the Association to supply lecturers from time to time:

- Mansion House Council on Health and Housing.
- Industrial Law Committee.
- Co-operative Women's Guilds (25 meetings).
- Education Committees.
- High Grade Schools.
- Faculties of Insurance.
- Prudential Assurance Company.
- Fraternal Association of Superintendents.
- Managers of Life Assurance Companies.
- Trades' Unions.
- Churches of all Denominations.
- Working Men's Clubs.
- Church Guilds.
- Mothers' Meetings.
- Sanatoria.
- Friendly Societies.
- Adult Schools' Unions.

P.S.A.
 County Boroughs.
 Insurance Committees.
 County Councils.
 World Service Exhibition.
 Brotherhoods.
 Foresters' Institute.
 Jewish Institutes.
 Tuberculosis Conferences.
 Women's Institutes.
 Nursing Associations.
 Care Committees.
 Industrial Works.
 Etc., etc.

CINEMATOGRAH FILMS.

During the course of the Tuberculosis Exhibition the Council added films to its exhibits. One film, "The Story of John McNeil," was produced by members of the Association in illustration of the significance of a complete co-ordinated scheme for the treatment of tuberculosis. It tells an interesting story of a family infected with tuberculosis, and the measures employed to deal with the manifestations of the disease in the different members of that household.

Another film which was bought from the Allied Association in America was entitled "The Red Cross Seal."

WAR-TIME LECTURES.

Early in January, 1919, Dr. Collis, Director of the Health and Welfare Section of the Ministry of Munitions, requested the Association to arrange a series of popular lectures for munition workers in some of the National Filling and Aircraft Factories. Twenty-five lectures were given in conjunction with the National Council for Combating Venereal Diseases at the following factories:

National Filling Factory,	Banbury.
" "	Greenford.
" "	Hereford.
" "	Hayes.
" Aircraft "	Waddon.

Afterwards the Council elected a special committee to deal with propaganda work, its duty being to revise existing branches and start new ones, so that each county should have a tuberculosis organisation linked to the parent Association.

TUBERCULOSIS SURVEY FOR THE BRITISH RED CROSS SOCIETY.

One of the chief items of work the Propaganda Committee undertook was a tuberculosis survey of England, largely on behalf of the British Red Cross Society, who had asked the National Association for the Prevention of Tuberculosis for its co-operation in their work.

A circular was drawn up entitled "Notes on Tuberculosis Schemes in Great Britain and Ireland," which gave in an epitomised form the machinery of the Government and of voluntary agencies for dealing with tuberculosis. This was placed in the hands of all the County Directors of the British Red Cross Society in England for their guidance.

Visits were paid on behalf of the Council to every county director and to every county medical officer of health in England ascertaining from them what each county lacked in the complete tuberculosis scheme. At the same time a survey was made as to what could be done in each particular county.

A report was prepared on these data for the British Red Cross, and it is largely on this information that the grants for tuberculosis, amounting to nearly a quarter of a million pounds, were given by the British Red Cross to the different county schemes.

HANDBOOK OF TUBERCULOSIS SCHEMES.

Another result of the Association's inquiry was the publication of the Handbook of Tuberculosis Schemes.

The purpose of the Handbook was twofold. First to serve as an index to the progress of the campaign against tuberculosis in the United Kingdom, and secondly, to stimulate responsible authorities and philanthropic agencies to increased effort.

The first edition was published in 1916, but as the Tuberculosis Schemes had been in operation for so short a period the information was necessarily incomplete.

The second edition of the Handbook was prepared for the Seventh Annual Conference in London in 1919.

It contained more detailed information regarding the tuberculosis schemes of the country than the first edition. A list of residential institutions (official and voluntary) for the indoor treatment of tuberculosis, arranged alphabetically according to counties, with the number of available beds, was added. The Registrar-General for England and Wales kindly supplied advance figures for each county and county borough.

The Handbook thus constituted something approaching to a Tuberculosis Directory in so far as provision for care and treatment were concerned.

The Council has prepared a third edition of the Handbook of Tuberculosis Schemes in view of the International Conference, in the belief that such an up-to-date survey will be of special interest to foreign delegates no less than to British authorities. A copy of the book will be presented to each delegate from abroad.

In the interval since 1919 the condition of the country generally has gradually become more normal. Tuberculosis schemes have developed, institutions which were shut down have been reopened, and the manning of many institutions has become more adequate.

It is not too much to say that the Association has contributed in no small degree to the tuberculosis campaign in this country.

Great Britain has now in universal operation throughout the country a definite and complete scheme for dealing with tuberculosis.

The machinery recommended by the Departmental Committee on Tuberculosis, 1912-13, consisted of two units, viz.:

(1) The dispensary unit, consisting of tuberculosis dispensaries, with their staff of officers and extensive and varied operations for the prevention and care of tuberculosis throughout the country.

(2) The institutional unit, consisting of sanatoria, hospitals, farm colonies, open-air schools, etc.

With each tuberculosis scheme there should be linked a care committee.

The proposed machinery was endorsed and stereotyped by the Local Government Boards and by the Insurance Commissioners in successive memoranda, and regulations issued to Local Authorities, Insurance Committees and others, and more recently by the Ministry of Health and the Scottish Board of Health, which severally combine the functions of the Local Government Board and the Insurance Commissioners in the two countries respectively.

While it has now become the duty of the councils of counties or county boroughs to formulate tuberculosis schemes, the schemes in many instances still make use of institutions and agencies established and maintained by voluntary effort. It should never be forgotten that most of the credit for the modern tuberculosis movement is due to the institutions and agencies fostered or inspired by the Association.

The record of the tuberculosis schemes of the country would be incomplete without reference to compulsory notification. Although for a good many years voluntary notification had been carried out in different areas, notification of pulmonary tuberculosis was made compulsory in 1912, and notification of all forms of tuberculosis was made compulsory in 1914 throughout Great Britain.

TRAINING SCHEME.

The Association has also taken up the subject of training in tuberculosis for voluntary workers. The matter had occupied their attention prior to the war, but its significance was much accentuated by war experience. More particularly it was felt that the disbandment of the great body of women volunteers, who, whether as members of Voluntary Aid Detachments or otherwise, had rendered such splendid service to the country, should not be allowed to proceed without an attempt to awaken their interest in the great possibilities of peace service—notably in the domain of tuberculosis.

Accordingly the Association approached the Joint Council of the Order of St. John and the British Red Cross Society, with the proposal that advantage should be taken of the opportune moment for the establishment of a course of training in tuberculosis. It was pointed out that the quick eye of thoughtful, trained women might do much to stem the ravages of the disease by early recognition of its presence, by advising the affected

individual or his guardians to seek medical help, more generally by instilling into the minds of households the sound principles of prevention and cure.

The function of the worker thus trained would be the simple and effective one of a detective officer within the social circle, quick to mark anything wrong and ready in case of emergency to render intelligent help. Linked with doctors and nurses in any area, she might render invaluable first aid.

At the request of the joint Council a scheme of training has been drafted for members of Voluntary Aid Detachments and other volunteer workers.

A syllabus of the course has been arranged, including lectures and practical training in tuberculosis and allied departments of knowledge.

The syllabus has already been adopted by the Scottish Branch of the British Red Cross Society, and courses have been successfully carried through in Edinburgh and Glasgow.

It is hoped within a short time to have a wide extension of such courses throughout the country, so that it may be possible for volunteer workers in any area to obtain readily the necessary training. The National Association desire to attain for Great Britain that the broad facts governing the prevention and recognition of tuberculous disease shall be matters of common knowledge.

ANNUAL TUBERCULOSIS CONFERENCES.

The Association first inaugurated its series of Annual Tuberculosis Conferences in 1909 at the time of the Tuberculosis Exhibition in Whitechapel.

The following is a list of ensuing Conferences :

Edinburgh Conference	1910
London Conference (Caxton Hall)	1911
Manchester Conference	1912
London Conference (Central Hall)	1913
Leeds Conference	1914
London Conference (Central Hall)	1919
Liverpool Conference	1920

The Conferences are attended by representatives of public health authorities, etc., and each year the number steadily increases. The proceedings are published afterwards in the form of Transactions.

FOUNDATION OF INSTITUTIONS.

London Open-Air Sanatorium, Pinewood, near Wokingham.

At the Marlborough House meeting in 1898, it was announced that Messrs. Wernher, Beit & Co. had undertaken to erect and equip a sanatorium at an estimated expense of £20,000, which afterwards reached £40,000, the constitution and management of which would be under the guidance of the National Association for the Prevention of Tuberculosis. The need

was much felt for a moderate-priced sanatorium which could be utilised by persons of limited means.

Thus one of the objects of the Association—the promotion of the establishment of open-air sanatoria—was early realised.

A site of 84 acres was bought at Pinewood, near Wokingham.

A considerable amount of time and money was expended in examining sanatoria, both at home and abroad, in order that the most modern information could be obtained. The buildings were completed at the end of June, 1901, accommodation for 64 patients being provided.

After the Sanatorium had been established the donors handed it over by deed as a free gift to the Association of the London Open-Air Sanatorium, the Board of Management consisting of seven members, four of whom were members of Council of the National Association for the Prevention of Tuberculosis.

Later the Sanatorium was taken over by the Institute of Bankers and was chiefly used for the benefit of bank clerks.

It has now passed into the hands of the Metropolitan Asylums Board for tuberculous ex-service men. The Sanatorium has been considerably enlarged and is a training centre for these men, all kinds of work being carried on.

Burrow Hill Training Colony, Surrey.

At the Annual Meeting in 1917 an address was delivered by Lieut.-Col. (now Sir) G. Sims Woodhead on "The Farm Colony for the Tuberculous," which gave an interesting account of the development of the Farm Colony Scheme. The Parliamentary Secretary to the Pensions Ministry was present, and gave the approval of the Ministry of Pensions to the scheme.

The necessity of taking a practical step had long been in the Council's mind. The time was considered ripe for the Association to take action and help to lead the way in the provision of a Farm Colony.

An appeal for £50,000 was made for starting a Colony for discharged tuberculous soldiers and sailors. A special Committee was appointed to inspect sites, which it was considered necessary should be near London.

An estate of about 120 acres was purchased near Frimley, in Surrey.

The land has been prepared and crops have been reared.

The necessary farm buildings, etc., have been erected.

Quite recently negotiations have been carried on with the Ministry of Health, who have agreed to co-operate with the Association in the erection of the buildings for the men. It is hoped before the end of the year the Colony will be completed and the men in residence.

The Colony will be confined to men who are considered suitable colonists, the idea being that they should have had sanatorium treatment, but require training in some occupation, outdoor or otherwise, to make them self-supporting.

The Colony will not be a permanent settlement colony for tuberculous ex-service men.

Southfield Colony, Edinburgh.

The Council is also participating in the formation of a Colony with similar objects in Scotland, thus widening its sphere of action.

It has contributed the sum of £4,000, with an annual contribution of £300 for three years, to the Royal Victoria Hospital Tuberculosis Trust for the establishment of a Colony at Southfield, near Edinburgh, which is now ready for occupation.

THE DISCHARGED TUBERCULOUS SOLDIER AND SAILOR.

During the war the Council directed its efforts to the questions of discharged tuberculous soldiers and sailors.

At the annual meeting in 1916 an address was given by Sir William Osler entitled "The Tuberculous Soldier," urging (1) a more searching examination of recruits; (2) a board of experts to decide on doubtful cases before discharge; and (3) a national organisation to deal with the welfare of the discharged man.

The Council held the view that the disabled soldier or sailor should be treated for his disease *prior* to his discharge, as too often it was found impracticable to treat him after discharge.

Deputations waited on the War Pensions, etc., Statutory Committee, and later on the War Office.

A memorandum was drawn up at the request of the War Pensions, etc., Statutory Committee on the "Care of the Tuberculous Soldier," which contained the following suggestions and points:

(a) That the soldier suffering from tuberculosis (in whatever form) should be treated for the disease during a certain period prior to discharge from the Army, and (b) that the services of officers in the R.A.M.C. who were experts in tuberculosis should be more definitely utilised in relation to the diagnosis and treatment of tuberculous soldiers.

The following points were pressed:

Point 1.—Military and other hospitals and sanatoria dealing with tuberculous soldiers should be requested to inform the Statutory Committee—prior to the discharge of the man from the several institutions—whether anything further was desirable in regard to his treatment or care, so that the committee might be in a position to take suitable action in the individual case.

Point 2.—The Statutory Committee, through its local agencies, should get into close touch with local tuberculosis authorities and care committees. Special attention should be called to the lack of provision for the treatment of surgical tuberculosis (*e. g.* joints, bones, peritoneum, glands, etc.), since many of the existing tuberculosis authorities make no special arrangements for dealing with them.

Point 3.—The Board of Trade (Labour Exchange) should be approached in order that the schedule, now being drawn up, regarding trades suitable for discharged soldiers should include tuberculosis, with appropriate trades for tuberculous soldiers. It might be proposed that preference should be given to tuberculous soldiers in respect of certain occupations.

Point 4.—The Agricultural Organisation, the Farmers' Union, the Rural League and the Royal Horticultural Societies should be approached with a view to their giving preference to applications from tuberculous soldiers.

Point 5.—The Statutory Committee should take part in the establishment of Farm Colonies, where tuberculous soldiers could remain for prolonged periods, engaged in farming or other suitable occupations, or alternatively should contribute to the maintenance of tuberculous soldiers in existing farm colonies.

Point 6.—The Statutory Committee should establish homes, very few of which exist and which are most urgently needed, for advanced or dying cases, or should contribute to the maintenance of suitable cases in such homes.

Point 7.—The Statutory Committee should consider the erection of an emigration scheme whereby tuberculous soldiers, when sufficiently recovered, might be transferred to one of the Colonies, where the regulations permit, and where the conditions of life and work might prove more suitable than those at home.

The War Pensions, etc., Committee carefully considered the Memorandum prepared for them. They agreed to carry out Points 1 and 2, but Points 4, 5, 6 could not be acceded to as the Committee had no power to enter into any capital outlay for the establishment of Farm Colonies or homes for the incurable cases.

As to Point 7, it was intimated that colonial authorities would not accept as emigrants tuberculous ex-service men.

The chief point, *i. e.* No. 1, the retention of tuberculous men in the Army for treatment, was found to be impracticable. The questions of separation allowances to the wives while the men were undergoing treatment and the giving or continuing of pensions it was agreed should be submitted to the Ministry of Pensions.

The deputations to the War Office on behalf of the separation allowances and the pensions of the tuberculous ex-service man were satisfactory. It was afterwards decided by the War Office that a tuberculous man would receive a pension whether he had tuberculosis before enlisting or not.

The memorandum was sent to the War Office, the Admiralty, the Pensions Minister and the National Health Commissioners.

While not wishing to emphasise any one particular suggestion on the memorandum to the exclusion of others, the Council urged the Government especially to consider the possibility of starting farm or training colonies for ex-service men, and a resolution to that effect was forwarded to the Minister of Pensions.

Arising out of the memorandum, the Council drafted a list of suitable occupations for tuberculous men, which was sent to the Board of Trade for the Labour Exchanges.

Efforts were also made to rescind the order of the Colonial Authorities as to the emigration of tuberculous men who had had sanatorium treatment, but the Council was not successful in its efforts.

SPECIAL POLICIES URGED.

Notification (Voluntary and Compulsory).

The Association had advocated the system of voluntary notification of tuberculosis from its inception, which was carried out in different areas in England. Soon afterwards compulsory notification of tuberculosis was enforced in 1912.

School Teaching of Hygiene, including Tuberculosis.

As far back as 1901 the Association approached the Board of Education in association with the Church Sanitary Association, the National Health Society and Royal Sanitary Institute, urging the inclusion in the school curriculum of the teaching of hygiene, including object-lessons in methods of preventing consumption.

Tuberculous Children in Schools.

Likewise in the same year the Association called attention to the danger of the presence of tuberculous children in schools, and advocated their exclusion.

Ventilation in Schools.

The Association at the same time urged the importance of adequate ventilation in schools.

Pure Milk Supply.

It will be seen from the list of objects that from the outset milk has always occupied the attention of the Association and has never been lost sight of.

In 1901 the regular inspection of milch cows was urged and the exclusion of tuberculous cows advocated.

As recently as 1920, at the last Annual Conference held in Liverpool, the subject of tuberculous milk was discussed. Resolutions were sent up to the Prime Minister, to the Ministry of Agriculture and to the Ministry of Health, urging that the Tuberculosis Order, 1914, and the Milk and Dairy Act, 1915, be brought into operation with as little delay as possible.

The Association published a leaflet entitled "Milk and Tuberculosis," giving instructions as to its treatment by sterilisation.

Another leaflet, kindly supplied by the Royal Agricultural Society, "Tuberculosis in Dairy Stock," was also circulated.

Spitting.

The Association made great efforts in suppressing indiscriminate spitting. A card was issued for the use of railway companies, which was posted up in the waiting-rooms and carriages of the principal railway companies on representation being made to them. An active part was also taken in the prohibition of spitting in tramcars and omnibuses.

Sanatoria.

The establishment of sanatoria was one of the chief policies of the Association, and through its branches seventeen sanatoria for the working classes were instituted.

Ventilation in Workshops.

In 1903 a letter was addressed to the Home Office calling attention to the need of adequate ventilation in workshops, factories, etc. An appeal was also addressed to employers of labour throughout the country.

Advice to Hospitals re Consumptive Patients.

In 1903 a letter was addressed to all hospitals, general and special, advising them to supply to all consumptive out-patients attending their hospitals a pocket spittoon and leaflets of instruction.

Conference of Friendly Societies.

In 1903, in response to an invitation from the National Conference of Friendly Societies, a deputation was sent from the Council which led to a visit being paid by the Friendly Societies to study the State Sick Insurance in Germany.

As a further result of conferences between delegates of the Hospital Saturday Fund and the Council, this visit helped ultimately to lead to the formation of the National Committee for the Establishment of Sanatoria for Workers suffering from Tuberculosis, Benenden Sanatorium being the outcome.

The Friendly Societies also adopted the Association's leaflets, and agreed to recommend to all their societies the notification of consumption.

An Inquiry and Memorial to Public Health Authorities.

In 1901 the Association addressed an inquiry to public health authorities throughout the country as to the steps which had been taken for the prevention of consumption, which was supported later by a memorial urging them to vigorous prosecution of these duties.

Homes for Advanced Cases.

As far back as 1904 the Association was advocating the foundation of homes for advanced cases. An inquiry was instituted later as to the existing accommodation for these cases.

Tuberculosis Dispensaries.

In 1910 a special Committee was appointed as to the advisability of the wider extension of Tuberculosis Dispensaries throughout the country.

Care Committees.

In 1911 a Care Committee sat to consider the care of patients after leaving sanatoria, the Council being impressed by the ill-effects of want of supervision.

Information was collected from public health authorities and voluntary agencies as to what machinery existed.

A Memorandum on Care was drawn up together with a leaflet entitled "For those who have been in a Sanatorium," and a card "How to Keep Well."

These publications have been widely circulated throughout the country.

The need for care committees was impressed on the notice of insurance committees and public health authorities.

League of Red Cross Societies (Geneva).

The Association has been formally recognised as the body standing for tuberculosis in this country so far as relations with the British Red Cross and the League of Red Cross Societies are concerned. It is hoped in this way to increase and intensify the scope of operations, and at the same time limit the risk of overlapping and unnecessary expenditure of money and effort.

A similar linking up of the International Union against Tuberculosis with the Tuberculosis Division of the League of Red Cross Societies would in the opinion of the Council conduce towards a like satisfactory result.

CONCLUSION.

The future opens up many vistas of urgent and pressing work, but the position and influence of the Association are well assured, as is indicated in the foregoing record of its present and past activities.

HOLLAND.

BY PROFESSOR DR. NOLEN,

Leiden.

At the Conference of Paris, Dr. Pynappel, who, alas, by a severe illness has been prevented from attending this Conference, most clearly explained the present state of the anti-tuberculosis action in Holland. He then especially threw light upon the fact that in our country the Government itself has taken the organisation of the campaign against tuberculosis more and more into its own hands. Consequently the chief leading nowadays depends on the State. Yet it undoubtedly is the intention of the Government that private initiative should keep a very active part too, as it appears to be fully aware of the fact that the army to fight against tuberculosis must be recruited from the very people itself. The Government has perceived that the victory over the treacherous enemy may be gained not only by money, but, above all things, by the sympathy of the laity and the devotional support of expert men.

In recent years our Government has given more and more money for the action of the local tuberculosis associations that are founded by private initiative all over the country. Besides, it has taken the control over the spending of the subsidies delivered by the State. That control was left to the care of our national central association formerly. According to the present regulation the Government has charged our national central association with the certainly not less important work of the anti-tuberculosis propaganda, and has asked it immediately to take the advancement of the scientific study of tuberculosis within the bounds of its activity. Hence to our national association that important part of the anti-

tuberculosis action has been included by the authorities, by which expert intellectual men are wanted first of all, and besides, our national association is free of administrative troubles, caused by the control of the spending of the subsidies given by Government to the local associations and the sanatoria. Consequently we can rejoice at the course which the tuberculosis action has taken in our country. For, with a feeling of gratitude, I may state here that the Government did not confine itself to the appointment of officials—inspectors, whose task it is to superintend the tuberculosis action, but at the same time it spends important amounts of money for the prophylactic measures to prevent the disease as for the treatment of the tubercular patients. To be sure we may not conceal that, now the State has taken the helm of the ship of the anti-tuberculosis campaign in its own hands, there is some fear of the spectre of bureaucratic prolixity, which would soon diminish the sympathy and the assistance of the general public. But we may rely upon the noble intention of the campaign against tuberculosis being a strong stimulus for the salutary co-operation of Government and private persons.

Circumstances are with us. The calamities of the war have opened the eyes to the ravages of the most dreadful scourge of the human race everywhere. The enormously high rate of mortality of tuberculosis has frightened the world. Yet any expert in tuberculosis, knowing that destitution and misery hasten the first appearance and the progress of the illness extremely, might have foretold that the rate of mortality of tuberculosis would rise importantly during the prolonged war. And presently, now that so many people have died of the disease who probably were already infected severely before the war began, it will be evident that the war has been a purifying process with regard to tuberculosis, although a purifying process of the most horrible kind. Most probably the rate of mortality will decrease automatically now again. All of us will strain every nerve to accelerate that automatic decrease by an artificial one.

ITALY.

BY SENATOR PROFESSOR DR. PIO FOÀ.

La lutte contre la tuberculose en Italie pendant les années 1920-21, a procédé avec beaucoup de zèle, soit par la Croix Rouge Italienne soit par la Direction Générale de l'Hygiène Publique de l'État, soit par les initiatives privés. En outre nous avons à signaler la sage institution promue par le Gouvernement de Consortiums antituberculaires chez les différentes municipalités des provinces (en villes—arrondissements). Ces consortiums, dont nous avons maintenant trois, qui fonctionnent très bien à Milan, Turin, Gènes, sont faits dans le but de la propagande surtout à la campagne, et pour l'institution de dispensaires et d'infirmes pour les travailleurs de la terre, afin de ne pas les obliger à se porter aux centres principaux de la province, pour recevoir l'assistance chez les hôpitaux déjà existants.

En outre, les Consortiums s'intéressent particulièrement aux tuberculeux de guerre, pour les adresser aux plus prochains Sanatoria.

D'autres institutions pour la propagande ont été faites soit par les municipalités, soit par le Gouvernement, soit par les privés. En effet, chez plusieurs municipalités, surtout dans les grands centres, on fait des cours spéciaux pour les écoliers des derniers cours de l'école primaire. Ce n'est pas seulement des leçons de démonstrations qu'on y fait, mais aussi on y oblige les enfants à faire un thème écrit qui peut concourir à un prix spécial, et destiné à celui qui a été le mieux rédigé. Les enfants étant ordinairement très communicatifs deviennent en effet chez les familles les meilleurs propagandistes qu'on puisse désirer.

L'État de son côté a propagé une quantité très grande de copies d'une excellente œuvre populaire intitulée "La lutte sociale contre la tuberculose" avec beaucoup de gravures, et à un prix très convenable.

Parmi les Instituts privés nous voulons signaler l'admirable initiative personnelle de Mr. le Prof. Ettore Levi qui a créé un Institut de Médecine Sociale, chez lequel il a collectionné toutes les données qui regardent la lutte contre la tuberculose, non seulement en Italie, mais aussi à l'étranger, y compris l'Amérique. De sorte que, celui qui aime à travailler sur la tuberculose envisagée pour la lutte internationale, peut trouver tous les documents nécessaires pour son instruction.

Nous devons encore signaler que dans ces deux ans aussi les dispensaires antituberculeux sont augmentés ; nous en avons maintenant à peu près 90, mais le côté le plus essentiel des nouvelles créations, c'est l'institution des centres diagnostiques approvisionnés de tous les instruments nécessaires pour le diagnostic précoce de la tuberculose, naturellement y compris les appareils de radiographie. Cette institution a été fondée pendant la guerre sous les ordres de la Direction Générale de la Santé Militaire, de sorte que chaque corps d'armée avait son centre complet de diagnostic.

Après la guerre ces centres au service de l'armée sont diminués de nombre, mais à côté des institutions militaires vont surgir les institutions civiles, qui la plupart part tendent à s'agréger aux dispensaires mêmes. À Rome, à Naples, et maintenant aussi à Milan, ont surgi des centres diagnostiques parfaitement installés. On a ouvert des Sanatoria, exercés par la Croix Rouge, tels que "Quasso al Monte" près de Milan et "l'Eremo di Lanzo," près de Turin.

On a augmenté le nombre des remparts dans les hôpitaux civils chez lesquels on donne l'assistance aux tuberculeux de guerre. C'est l'Œuvre Nationale pour les invalides de la guerre qui va recevoir à ce but six millions de lires de la part du Gouvernement.

Dans ces deux dernières années, on a eu un très confortable mouvement pour la protection de l'enfance, depuis la naissance jusqu'à l'âge de l'adolescence.

D'abord nous voulons signaler les nombreuses Colonies marines et alpines que toutes les villes ont instituées pour les enfants scolaires, mais aussi une nouvelle institution qui a été fondée surtout à Milan, à Turin, à Rome, et à

Naples et à Venise par laquelle les écoliers qui n'ont pas la chance d'aller chez les Colonies, et sont obligés de rester à la ville pendant l'été, sont toutefois rassemblés dans quelque endroit périphérique de la ville plus ou moins riche de végétation, et on y forme une Colonie chez laquelle les enfants habillés seulement de petites culottes, restent nus pendant toute la journée à l'air libre et au soleil. Le soir ils sont ramenés chez les parents et on y voit de très bons résultats au point de vue de la santé et même de l'éducation. Il y a une masse de Colonies prophylactiques pour les enfants qui appartiennent aux familles où il se trouve des tuberculeux plus ou moins avancés. Nous signalons à ce point de vue la "Colonia Profilattica de Turin," qui a à peu près 200 petits enfants de 3 jusqu'à 6 ans, et encore à Turin la soi-disant "Casa del Sole" chez laquelle sont recueillis 200 petits enfants presque tous orphelins de guerre, aidés par l'État et par la population même. Mais à propos de la protection de l'enfance et des autres institutions anti-tuberculeuses, nous voulons signaler trois centres, tels que Milan, Naples et Rome. A Naples dans peu d'années on a créé beaucoup d'institutions anti-tuberculeuses, soit pour les enfants, soit pour les adultes, de sorte que aujourd'hui tous les éléments pratiques pour la lutte contre la tuberculose ont été appliqués.

Près de Milan, à Olgiate Olona, un privé, Mr. Preti, a donné une superbe villa qui appartenait autrefois au Prince Gonzaga, et qui a agrégé un grand parc et même de la terre cultivée. A l'institution à toutes étendue les provinces de la Lombardie pour la protection de l'enfance contre la tuberculose, les grands industriels de la Haute Lombardie donnent beaucoup d'argent pour la maintenir et c'est très confortant d'y voir pour le moment 200 petits enfants des deux sexes enlevés aux familles tuberculeuses, qui passent toute la journée au grand air et au soleil et qui reçoivent ordinairement l'instruction primaire par des institutions de la municipalité de Milan.

Les enfants surtout seront dressés préférablement aux travaux de la terre, car on désire en faire des agriculteurs.

Les jeunes filles sont particulièrement dressés aux travaux féminins et à l'économie domestique. On commence aussi à agréger à l'institution, une crèche pour les nourrissons, des familles tuberculeuses.

A Rome on a créé "*l'Istituto dei Poppanti*" par Madame Maraini, et dirigé par le Prof. de Pédiatrie Mr. Valagussa—chez lequel on recueille les nourrissons enlevés le plus tôt après leur naissance au sein de la mère tuberculeuse afin d'épargner la première infection de la toute première enfance, qui est important non seulement pour la vie des nourrissons, mais pour expliquer l'apparition tardive de la phthisie pulmonaire.

On n'a pas encore institué la statistique de la mortalité pour la tuberculose après l'armistice, mais on a la conviction qu'on ne tardera pas trop à constater le recommencement de cette descente de la mortalité pour la tuberculose qui avait été constaté déjà sensiblement avant la guerre.

JAPAN.

BY DR. MIYAJIMA,

Representative of Japan on the Health Committee of the League of Nations.

IN recent years numerous organisations have come into existence in Japan to fight against tuberculosis. Among these the Anti-tuberculosis Associations in Tokio and Osaka are the best known. In addition to these institutions there are established in various prefectures, and also in Chosen, in Formosa, and in southern Manchuria, similar associations for the encouragement of the prevention of consumption among the population. These organisations have centred their activities in the education of the public as to the danger of the disease, and also have given aid to patients suffering from the first stage of consumption. In 1920-1921 they were particularly active in their campaign for health education.

At present the most serious problem arousing public attention is the prevalence of tuberculosis among teachers of public schools and among women workers in cotton mills. Towards the investigation of the problem and the discovery of the proper method of prevention there has been, during the period under consideration, marked activity among the medical inspectors of schools and those of factories. The Bureau of Health of the Department for Home Affairs added this year to its staff a special section dealing with chronic infectious diseases, officers of which devote their time essentially to anti-tuberculosis work.

Anti-tuberculosis legislation, which was passed in 1919, provided that patients who are unable to meet the expenses for medical aid may be treated without charge, and members of the family may also receive support from the State in case the patient is the supporter of the family. The legislation also provided that the Minister for Home Affairs may urge the Local Authority to establish a sanatorium for consumption in a city with over 50,000 population.

As the result of this legislation several sanatoriums were established in 1921 in various cities, besides the institutions in Tokio, Osaka, Kobe and Yokohama. To meet the cost it was provided that one-sixth to one-half of the total expenditure may be paid out of the National Treasury. Of the general cost in connection with the prevention of the disease the Local Authority shall bear the financial responsibility, but one-fourth of the sum expended may be borne by the National Treasury.

To add to the efficiency of the preventive side of the work, medical research institutions in Japan established a special section for the investigation of the tuberculosis problem. In Osaka an institution was endowed with private funds to conduct research in connection with the anti-tuberculosis movement in Japan.

MONACO.

PAR DR. MARSAN,

Le Directeur Service d'Hygiène Publique.

La Principauté de Monaco possède, à l'heure actuelle, comme organisations antituberculeuses :

1°. Un Pavillon spécial pour l'isolement et le traitement des tuberculeux ; ce Pavillon où se trouvent réunis tous les perfectionnements de l'hygiène moderne, véritable sanatorium très bien exposé, comprend des petites salles de 5 lits pour les indigents et des chambres particulières pour les malades payants, avec sur le devant une galerie de cure.

Cette installation située près de l'Hôpital, entourée d'un jardin a permis de séparer complètement tous les tuberculeux des autres malades et de les placer dans les meilleures conditions pour leur traitement.

2°. Dans le courant de cette année ont été installées, dans un immeuble très coquet, spécialement aménagé, une Goutte de Lait avec consultation de nourrissons et une Crèche municipale.

La Goutte de Lait a pour but de distribuer aux nourrissons qui ne peuvent être nourris par leur mère, du lait pur et stérilisé.

Le médecin de l'Œuvre donne aux mères les conseils nécessaires pour les soins à donner aux enfants. Des visiteuses d'hygiène qui assistent le médecin dans ses consultations, assurent, par des visites à domicile, la prophylaxie des maladies transmissibles et de la tuberculose notamment.

La Crèche garde pendant toute la journée les enfants dont les parents travaillent au dehors ou qui sont malades à leur domicile ou à l'Hôpital. Ces enfants peuvent ainsi être tenus éloignés de la contagion le plus longtemps possible en cas de maladie d'un des membres de la famille.

3°. Une Colonie de vacances, qui fonctionne depuis plusieurs années, permet d'envoyer à la campagne, pendant les mois d'été, les enfants débiles, pré-tuberculeux ou qui se trouvent logés dans des conditions d'hygiène défectueuse. Cette Œuvre rend de grands services au point de vue de la prophylaxie de la tuberculose.

4°. Une institution importante d'hygiène est en voie d'organisation : c'est celle de l'inspection médicale des écoles. Dans chaque quartier de la Ville, un médecin spécial aura pour mission de visiter régulièrement toutes les écoles de ce quartier, d'examiner tous les élèves et d'établir pour chacun d'eux une fiche médicale. Cette visite des écoles aura entre autres avantages celui de dépister les tuberculeux, les pré-tuberculeux et ceux atteints d'autres affections, de les éliminer des classes et de leur faire donner les soins nécessaires.

5°. Le dispensaire antituberculeux dont nous réclamons depuis plusieurs années la création n'a pu être encore organisé, par suite de difficultés spéciales. Mais nous espérons que cette institution actuellement à l'étude pourra être réalisée dans un avenir prochain.

NEW ZEALAND.

By DR. R. W. MAKGILL, C.B.E.

THE reduction in the figures for tuberculosis for 1919 is a matter for congratulation, especially in view of the adverse conditions of influenza-prevalence and house-shortage with the resultant over-crowding. The notifications for 1919 are actually fewer than for 1912 or 1913.

Returns of notifications, however, are not a reliable source for forming conclusions as to the prevalence of tuberculosis, owing to the fact that many cases are not recognised in the early stages, and others, again, are not reported until death occurs. The returns of deaths, as set out below, may be expected to show more accurately the course of the disease.

DEATHS FROM TUBERCULOSIS.

Decennial Table, 1910 to 1919, showing for Each Year the Rate per 10,000 Living and the Percentage of Total Deaths from Tuberculosis.

Year.	Mean population.	Number of deaths from tuberculosis.	Rate per 10,000.	Percentage of total deaths from all causes.
1910 . . .	992,802	731	7·36	7·58
1911 . . .	1,014,896	738	7·27	7·74
1912 . . .	1,039,016	716	6·89	7·77
1913 . . .	1,068,644	812	7·60	8·02
1914 . . .	1,090,328	728	6·67	7·17
1915 . . .	1,099,394	693	6·30	6·95
1916 . . .	1,099,449	742	6·74	7·00
1917 . . .	1,099,117	755	6·87	7·17
1918 . . .	1,103,022	832	7·54	5·08*
1919 . . .	1,136,389	762	6·71	7·64† 7·05

* All deaths. † Excluding deaths from influenza, October–December, 1918.

The above table shows that the death-rate from tuberculosis remains practically at the same level in 1919 as in 1914. The Department does not consider that the position, satisfactory though it be, warrants any slackening of effort, but has in mind closer measures of control. It is hoped to develop the existing system of tuberculosis dispensaries, and to devote more attention to the after-care of patients discharged from sanatoria.

Further information concerning the incidence of pulmonary tuberculosis in 1919 is furnished by the next two tables, showing the number of cases notified (A) in hospital districts and (B) by months :

TABLE A.—*Showing number of Cases of Pulmonary Tuberculosis notified in Hospital Districts during the Year 1919.*

Hospital district.	Estimated population (excluding Maoris).	Estimated Maori population.	Tuberculosis.
North Auckland Health District:			
Bay of Islands . . .	11,985	9,711	7
Kaipara	10,017	1,284	6
Whangarei	12,640	1,095	3
Auckland Health District:			
Auckland	168,410	1,716	145
Waikato	56,749	8,139	28
Thames	14,548	1,365	9
Waihi	4,961	—	1
Coromandel	2,344	300	1
Tauranga	5,852	1,716	2
Bay of Plenty	6,139	4,201	3
Taumarunui	9,014	1,081	3
Wellington Health District:			
Waiapu	2,156	2,714	—
Cook	21,127	1,755	24
Wairoa	4,013	2,555	33
Hawke's Bay	33,344	1,203	28
Waipawa	20,043	727	19
Taranaki	24,778	1,752	18
Stratford	9,614	19	—
Hawera	16,328	832	6
Patea	4,956	276	3
Wanganui	42,626	2,352	29
Palmerston North . . .	44,380	1,778	11
Wellington	107,049	458	91
Wairarapa	32,243	881	15
Wairau	11,777	86	—
Picton	3,246	287	1
Nelson	25,533	138	2
Canterbury Health District:			
Westland	7,502	56	2
Buller	10,124	25	—
Inangahua	4,249	—	—
Grey	12,739	—	8
North Canterbury . . .	134,475	740	251
Ashburton	16,404	17	12
South Canterbury . . .	37,813	217	22
Otago Health District:			
Waitaki	15,636	37	16
Otago	108,792	123	134
Vincent	5,307	—	8
Maniototo	2,884	—	3
Southland	53,169	47	37
Wallace and Fiord . . .	10,583	93	3
Totals	1,125,549	49,776	984

TABLE B.—*Incidence of Pulmonary Tuberculosis according to Notifications received Monthly under Section 25 of the Public Health Act during the Year ended December 31st, 1919.*

Month.	Tuberculosis.
January	74
February	84
March	107
April	70
May	71
June	75
July	83
August	95
September	71
October	88
November	95
December	71
Total	984

NORWAY.

By PROFESSOR FRANCIS HARBITZ,

President of the Norwegian National Society against Tuberculosis.

THE campaign against tuberculosis in Norway has been carried on according to the plan designed at the commencement of this century.

In 1897 the first public tuberculosis sanatorium was opened at Reknes, formerly a leper hospital, with 65 beds. In 1903 the next public sanatorium was opened at Lyster with 100 beds.

In 1916 and 1917 two other public sanatoria were opened, one for Southern Norway (the Landeskogen) and another for Northern Norway (the Vensmoen), each with 120 beds. This year (1921) our Storting (Parliament) has voted one and a quarter million kroner for the purpose of building two new sanatoria, the one for Trøndelagen and the other for the south-eastern district of the country, each sanatorium with 150 beds. The day's pay is kr. 1·20 ; the State covers the deficit. Besides these four (prospectively six) sanatoria there are four private sanatoria for people better off and two public sanatoria. The State has during the last years granted considerable subsidies to cover the working expenses of these two sanatoria. Further, the municipality of Kristiania is now building a sanatorium with 120 beds.

The average time of stay at the State sanatoria has been three to four months, which, however, has proved to be far too short a time for attaining lasting results. Partly to remedy this fact the Storting, therefore, has voted considerable subsidies which have been granted to convalescents dis-

charged from sanatoria or tuberculosis hospitals. Such contributions are only paid to municipalities or associations which by other means procure the same amount applied for from the State.

At some places work or convalescent homes have been opened where single convalescents find a cheap or gratis stay. These homes have, however, not met with the demand expected, no doubt on account of the patients being mostly young people who do not feel inclined to submit themselves to the discipline and control which must prevail in such homes.

More successful are the attempts which have been made to procure for families with a tuberculous convalescent better housing in the new garden cities at a cheap rent, thus especially in Kristiania.

As soon as the new sanatoria have been built the cure time is intended to be prolonged to at least half a year.

Norway has three seaside hospitals at Fredriksværn, at Hagavik and at Vadsø, and the Storting has up to now voted altogether kr. 550,000 for the erection of another seaside hospital at Tromsø. For the above-mentioned seaside hospitals the State has paid the amount which exceeds the day's pay—kr. 1.00.

The prophylactic tuberculosis work has been founded on the tuberculosis law of 1900, which imposes a compulsory notification of all cases of open tuberculosis, and also—where the circumstances at home necessitate it (danger of infection)—this law eventually compels the tuberculous patient to go to the hospital.

When the tuberculosis law was passed there was want of such hospitals; Norway could therefore not compel people to go to hospitals. But already in 1901 the so-called tuberculosis homes were built and opened as a direct consequence of the law. Norway has now ninety such homes with more than 2000 beds. In process of time these homes have turned from being mere isolating establishments for patients suffering from advanced tuberculosis to become institutions where early tuberculosis is treated. The Storting thus has also voted considerable amounts for last year, giving half gratis stay and treatment for patients coming to the homes in order to be cured.

The Storting has also resolved that the amount—for half-gratis pay and treatment—may be granted to children from tuberculous families, and these are either sent to children's homes or to permanent open-air schools.

The tuberculosis budget of the State has risen from kr. 80,000 in 1901 to more than four million kroners for the present financial year, 1921-22.

Besides the State the two great private organisations, viz. "Norwegian Women's Sanitary Association" and "The Norwegian National Association against Tuberculosis," display an ever-increasing work. The associations have about 1000 subsections with about 130,000 members, and these subsections subsidise patients at sanatoria and at tuberculosis homes. They also train and pay nurses, who attend to the tuberculous patients as well as carry on hygienic inspection in the patients' own homes. The nurses also diffuse knowledge necessary for people. These local subsections have their

income partly by contribution of the members and partly through gifts, partly also by selling "Christmas shares," "Christmas stamps" and "May-flowers." These "articles" brought them last year kr. 260,000 net. Since 1906 they have given them kr. 2,500,000 net.

A State lottery brings the two head associations about kr. 400,000 together. This money is mostly spent in the campaign against children's tuberculosis, viz. for the erection of children's homes, open-air schools, and for holiday colonies out in the country.

The tuberculosis mortality has gone down from 2.8 per thousand in 1900 to 1.93 per thousand in 1917.

When examining the tuberculosis mortality statistically within the various periods of life (such as the Chief Physician of Tuberculosis, N. Heitmann, has done) for the years 1900-1917, the result shows that the tuberculosis mortality among children during the first year of life has gone down with 50 per cent., for the years 1-5, 45 per cent., for the years 5-10, 47 per cent., and for the years 10-15, 25 per cent. On the contrary, during the later periods of life the sinking is much less comparatively. This happy decrease of the mortality of tuberculosis in childhood is specially seen in the sinking of the mortality of tuberculous meningitis, while the mortality of tuberculosis of the lungs has decreased comparatively.

The decrease of the tuberculous mortality in general may be taken as a token that the way chosen has been the right one. The new tuberculosis Bill, which unfortunately has not yet passed, therefore builds on the same plan, and suggests—

- (1) Enlargement of the duty of notification.
- (2) Enlargement of the right to send tuberculous patients to hospitals.
- (3) That the State shall pay all expenses for care and nursing of the tuberculous patients.

The above-stated figures show that childhood is very important, probably the most important period of life as to the frequency of tuberculosis. The campaign must therefore principally have this in view.

The most important matter in future which the Norwegian National Association against Tuberculosis and Norwegian Women's Sanitary Association at present work with, is development and organisation of dispensaries all over the country. In connection herewith must also be training and engagement of nurses in the various districts.

ROUMANIA.

PAR DR. S. IRIMESCU,

*Directeur général de la Société pour la prophylaxie de la tuberculose en Roumanie ;
Médecin en chef du Sanatorium de Filaret (Roumanie).*

LA lutte contre la tuberculose a pris dans ces trois dernières années un assez grand essor dans notre pays.

La tuberculose devenait menaçante avec son enorme extension: plus de 60,000 comme mortalité.

La déchéance physique à la suite des grandes épidémies (typhus exanthématique, fièvre récurrente) qui ont sévi, pendant la guerre, les misères physiques et morales des deux années d'occupation étrangère sur une grande partie de notre territoire, l'état de dépression, réaction, de la tension continuelle d'esprit et d'énergie soumise à des rudes épreuves (la guerre avec ses hauts et ses bas a ébranlé tous les ressorts de l'âme et du corps) ont provoqué une recrudescence formidable des foyers latents qui jusqu'alors sommeillaient. Constatation faite aussi dans d'autres pays: les formes aiguës devenaient très fréquentes et imprimaient à la tuberculose les caractères d'une épidémie aiguë. Il fallait agir et de toute façon contre la pandémie tuberculeuse envahissante.

L'organisation de l'assistance des tuberculeux, telle qu'elle existait avant la guerre, était tout à fait insuffisante. On n'était pas resté sur place; on avait agi mais on n'avait réalisé que peu de chose.

La lutte antituberculeuse est en Roumanie, d'assez vieille date. En 1901, la "Société pour la Prophylaxie de la Tuberculose" a pris naissance. La tuberculose faisait déjà à cette époque assez de ravages et des mesures de combat s'imposaient.

D'après les statistiques des hôpitaux, d'après le nombre des consultations gratuites données dans ces mêmes hôpitaux, d'après la vérification des décès dans les villes chefs-lieux de départements et dans quelques autres villes plus importantes (dans les campagnes la vérification des décès n'était pas pratiquée) en était arriver à estimer le chiffre de la mortalité due à la tuberculose à 3-4 %.

La tuberculose qui tuait à elle seule trois fois plus de personnes que toutes les autres maladies infectieuses réunies provoquait ainsi pour une population de 7 millions d'habitants (nous étions alors réduits à nos anciennes frontières) au moins 25,000 décès chaque an.

La Société pour la Prophylaxie de la Tuberculose une fois constituée a dû se contenter (ne pouvant pas faire mieux) dans ses cinq premières années de fonctionnement, à donner des consultations dans un dispensaire provisoire installé dans un des hôpitaux de la ville de Bucarest, de faire œuvre de propagande par des conférences publiques et par des brochures de vulgarisation.

En 1904, à la suite de son intervention, le parlement vote une somme de 400,000 francs pour la construction d'un sanatorium et la ville de Bucarest offre un terrain de 7 hectares situé à Filaret, dans la partie la plus haute et la plus saine de la ville, pour servir d'emplacement pour ce sanatorium. En 1906, le Sanatorium avec ses trois sections: sanatorium proprement dit pour les formes au début, hôpital pour les cas avancés, dispensaire ouvre ses portes.

Depuis 1906, le sanatorium de Filaret a fonctionné d'une façon régulière et les résultats obtenus consignés dans des rapports annuels (résultats excellents surtout étant donné le recrutement, un grand nombre de malades

ayant des lésions avancées) ont beaucoup contribué pour répandre dans le public la notion de la curabilité de la tuberculose et des possibilités de traitement dans des établissements destinés à cette cure.

En 1908, le professeur Cantacuzène, alors directeur du Service Sanitaire fait construire ou aménager en vue de la cure des tuberculeux encore quatre autres sanatoriums-hôpitaux : (Bisericani, Bârnova, Petresti, Nifon). Le mouvement en faveur des mesures à prendre contre la tuberculose se dessine de plus en plus. À Bucarest quatre autres dispensaires, en dehors de celui de Filaret, sont créés avec assistance aussi complète que possible, réalisant quelque peu le type du dispensaire Calmette de Lille. À Galatzi, une des villes les plus importantes du pays, un dispensaire très actif entre en fonction. Un hôpital d'isolement disposant de 20 lits, est annexé à ce dispensaire pour les cas avancés.

C'était peu mais c'était tout de même un progrès, étant donné que comme dans tous les pays neufs, les courants d'opinion publique se forment lentement en vue des mesures hygiéniques et de la lutte contre les maladies épidémiques même quand celles-ci, comme la tuberculose, sont des véritables fléaux.

Le grand choc de la guerre mondiale nous surprend sans grande préparation, pour l'assistance des tuberculeux.

Quand nous sommes entrés dans le grand combat, à notre tour, le désarroi de la première phase de la guerre provoque (l'affluence des malades de toute catégorie était énorme dans les hôpitaux) un vrai émoi, après l'arrivée d'un grand nombre de tuberculeux dans les services généraux du front et de l'arrière front. On organise à la hâte quelques services de triage—et on tâche de créer quelques centres pour la cure et l'isolement des tuberculeux.

Les difficultés étaient très grandes pour organiser d'une façon systématique l'assistance des tuberculeux. Pays envahi et pays appauvri, nous ne savions comment trouver les moyens pour une organisation qui réclamait en dehors de la mobilisation de beaucoup d'énergies et de beaucoup de bons vouloirs, des très grosses dépenses. Il fallait cependant malgré tous les obstacles, agir. Le danger était trop menaçant et il s'imposait à l'attention de tous.

La Société pour la Prophylaxie de la Tuberculose, dont les membres étaient dispersés mais dont un grand nombre se trouvaient réunis à Iassy dans la partie non occupée du pays mobilisés dans les différents services de l'armée, a cru de son devoir de jeter le cri d'alarme.

Des comités ont été créés, des appels au public ont été lancés et comme les moyens manquaient, une quête a été organisée et grâce à l'appel de la Reine (qui a signé elle-même ces appels) on a pu obtenir quelques fonds qui ont servi à poser les premières bases d'une organisation plus complète de l'assistance des tuberculeux.

La Direction Sanitaire civile a fait passer à la Société pour la Prophylaxie de la Tuberculose le Sanatorium de Bisericani, où plus de 100 malades pouvaient être hospitalisés. L'autre Sanatorium de la Direction Sanitaire, Bârnova avec ses 80 lits disponibles continuait à recevoir des

malades. Dans les environs de Bisericani, l'ancienne prison de Pangaratzi a été aménagée (avec plus de 100 lits) pour la cure des tuberculeux.

Des dispensaires chaque jour plus nombreux prenaient naissance où des médecins dévoués aidés par des enquêteuses—dames patronesses des filiales de la Société, femmes de beaucoup de cœur et de grande énergie, infirmières—tâchaient de réaliser une assistance aussi complète que possible au domicile des malades.

À Issay, à Galatzi, à Roman ces dispensaires fonctionnaient du temps même de la guerre et de la trêve malheureuse pendant la paix boiteuse qui a précédé la grande victoire des alliés.

Le mois de Novembre, 1918, arrive et c'est la grande date quand nous avons pu respirer librement, échappés à la pression de l'ennemi.

Le rêve séculaire était accompli. Nous étions un grand peuple, en état de montrer ce que peut donner l'énergie et la vitalité de notre race, qui avait déjà fait ses preuves dans l'histoire. Nous retrouvions Bucarest dans l'apothéose du triomphe des faits d'armes de nos grands alliés auquel nous avions contribué nous-mêmes quelque peu dans le sursaut suprême de la dernière phase de la guerre pour ne pas démentir l'héroïsme du début.

Mais que d'ombres à ce tableau! La population exténuée par des misères de toute sorte (matérielles et morales) offrait un terrain excellent pour la tuberculose, qui, elle ne connaît pas d'armistice et est toujours prête à l'attaque.

La Société pour la prophylaxie de la tuberculose s'est rendu compte que plus que jamais elle devait intervenir et essayer d'élargir ses moyens d'action.

La subvention accordée par la Direction du Service Sanitaire a été après sa demande augmentée (la somme budgétaire inscrite restant tout de même minime—800,000 lei—faute de disponibilités plus grandes). Après des appels, repandus partout dans le pays, plus de 10,000 membres se sont inscrits apportant en dehors de leur contribution matérielle (cotisation annuelle) la collaboration qu'ils nous offraient pour notre œuvre de propagande et de vulgarisation. La quête pour les tuberculeux, à un jour fixe de l'année a été maintenue et la Reine a bien voulu nous donner le même concours enthousiaste contribuant ainsi par l'autorité et le prestige de son nom à la réussite complète de cette quête. En 1919, nous avons pu réunir par les donations et la quête une somme de 930,000 lei.

À Bucarest le nombre des dispensaires a été augmenté de 4 à 7. Les dispensaires ont fonctionné d'une façon aussi méthodique que possible. Les enquêtes sociales ont eu comme sanction les subsides accordées aux malades d'après les indications de ces enquêtes.

À l'hôpital et au sanatorium de Filaret le nombre des lits a été augmenté de 80 à 100. Le sanatorium de Bârnova (Moldavie) a passé lui aussi sous l'administration de la Société pour la Prophylaxie de la Tuberculose.

La réunion de tous les sanatoriums sous une administration commune a permis, de faire mettre en œuvre le traitement d'après des directives unitaires. Des équipes de malades de différents dispensaires du pays étaient envoyés à ces Sanatoriums. La désinfection à domicile après décès

ou après déménagement a été pratiquée d'une façon régulière grâce à l'accord établi avec le service sanitaire de la ville de Bucarest.

Les dispensaires de Bucarest ont donné des consultations à 2735 malades; 776 personnes ont été aidées à leur domicile, on a distribué des lits pour ceux qui n'en avaient pas (quand ces malades étaient contagieux—pour leur usage personnel et quand ils le partageaient avec plusieurs membres de leur famille) des crachoirs. L'aide la plus importante a été par les aliments donnés en assez grande quantité, soit gratuitement, soit à moitié prix pour ceux qui avaient la possibilité de les payer. On a ainsi distribué des aliments pour une somme de près de 60,000 lei des vêtements, des chaussures pour 14,000 lei.

Dans les quatre sanatoriums—de la Société pour la Prophylaxie de la Tuberculose—1226 malades ont été reçus. Les résultats obtenus consignés dans les rapports des médecins directeurs de ces sanatoriums sont assez bons pour soutenir la comparaison avec ceux des établissements similaires des autres pays.

Les dix dispensaires qui ont fonctionné dans le reste du pays ont fait preuve d'une grande activité.

Le filiale de Craiova qui a pu grouper beaucoup de personnes de grande activité a réuni un fond de plus de 350,000 lei, celle de Iassy tout aussi active dispose d'un fond de 170,000 lei.

À Galatzi le dispensaire a pourvu à l'isolement de 142 tuberculeux dans son hôpital de 20 lits et a envoyé 100 enfants de famille des tuberculeux dans un préventorium situé tout près de cette ville.

L'année 1919-1920 s'est donc soldée avec des progrès réels pour l'assistance des tuberculeux.

L'année en cours, 1920-1921 a permis de réaliser des progrès encore plus notables. Dans les quatre sanatoriums (Filaret, Bisericani, Pangaratzî, Bârnova)—malgré que le sanatorium le plus important, celui de Filaret, a été fermé pendant plus de quatre mois à cause des réparations qui étaient devenues nécessaires, on a reçu 1390 malades, chiffre supérieur à celui de l'année précédente.

Les dispensaires ont rivalisé d'activité.

Les six dispensaires de Bucarest ont donné des consultations à plus de 3450 malades.

Pour ne citer que les données les plus importantes de l'assistance par l'œuvre des dispensaires de Bucarest, on a distribué des aliments, pour une somme de 146,000 lei, on a payé des loyers pour la somme de 22,500 lei. Des enfants des familles tuberculeuses ont été placés en assez grand nombre dans des familles saines—d'autres enfants ont été envoyés dans des colonies de vacances, et des logements, vrais taudis où la contagion semblait inévitable, ont été remis en bon état.

Comme l'année précédente les filiales de province de mieux en mieux organisées, ont assisté d'une façon aussi complète que possible un grand nombre de malades. Le nombre des filiales avec dispensaires annexés est allé en augmentant.

À celles existant en 1919-1920, au nombre de dix (Craiova, Iassy, Galatzi, Braila, Roman, Piatra-Neamtz, Focsani, Târgoviste, Târgul-Jiu, Chisinau) sont venues s'ajouter encore 13 autres (Brasov, Sibiu, Bârlad, Caracal, Alexandria, Severin, Ploesti, Corabia, Bâlsch, Falticeni, Oltenitza, Budesti, Targul-Neamtz) ce qui fait que le nombre total de dispensaires est pour l'année 1921 de 23.

Les dispensaires fonctionnant depuis quelques années ont provoqué un vif mouvement d'opinion publique autour de leur champ d'action et le nombre de malades assistés s'est accru tous les ans davantage. Craiova tient la tête, la filiale de cette ville qui dispose déjà d'un fond de plus d'un million, et qui est en train de construire un sanatorium-hôpital pour son propre compte a donné à son dispensaire des consultations à 967 malades et a pu pourvoir à l'assistance des plus nécessiteux parmi ces malades.

Iassy suit de près avec 465 malades soignés et assistés. Son premier fond s'est accru et la subvention accordée par la Direction Générale du Service Sanitaire de 200,000 lei lui est d'un grand aide pour tâcher de réaliser l'aménagement d'un hôpital d'isolement dans la ville même de Iassy.

À Galatzi, 54 malades ont été soignés dans l'hôpital d'isolement de cette ville—33 malades ont été envoyés dans les différents sanatoriums du pays, 85 malades ont été assistés à leur domicile.

À Braila, jeune filiale très active (elle disposé déjà d'un fond de plus de 150,000 lei) le dispensaire a donné en 6 mois 125 consultations.

Les autres filiales (Târgoviste avec 192 malades, Târgul Jiu 195 malades, Focsani 192 malades, Caracal 80 malades, Brasov 66 malades, etc.) qui ne sont qu'à leurs débuts montrent beaucoup de zèle et beaucoup d'enthousiasme et sauront arriver et assez vite à accomplir leur tâche tout autant que leurs anciens.

L'école d'infirmières visiteuses fondée auprès du sanatorium de Filaret—une première promotion de ces infirmières a été répartie dans différents sanatoriums et dispensaires de Bucarest et de la province—sera d'un grand aide pour la création d'un personnel instruit pour l'assistance des tuberculeux.

Ces quelques chiffres—des rapports détaillés et documentés sont publiés tous les ans par chacun des sanatoriums et des dispensaires—montrent qu'un mouvement sérieux se dessine dans notre pays pour l'assistance des tuberculeux.

Il est juste de citer pour être complet—la Société pour le Traitement des Enfants Tuberculeux a fusionné avec celle pour la Prophylaxie de la Tuberculose—l'œuvre admirable accomplie par le Sanatorium maritime de Tekir-Ghiol.

Du 1^{er} Juillet 1920—date de sa réouverture—jusqu'au mois de Juin 1921, 403 enfants ont été reçus—pour des affections de nature osseuse et ganglionnaire.

La Société pour l'Isolement des Tuberculeux, qui travaille parallèlement avec la Société pour la Prophylaxie de la Tuberculose a fait ouvrir dernièrement un service d'isolement des tuberculeux avancés, dans un hôpital com-

munal de Bucarest (hôpital "Zerlendi") où près de 200 malades pourront être hospitalisés.

L'État qui jusqu'à présent n'a contribué que très peu aux mesures pour l'assistance des tuberculeux s'est laissé fléchir un peu plus cette année.

Une somme de 4 millions lei a été inscrite dans le budget sanitaire comme subvention à la Société pour la Prophylaxie de la Tuberculose. C'est de beaucoup trop peu mais c'est tout de même une augmentation vis-à-vis des contributions des années précédentes, et qui est de bon augure pour les contributions futures. Les contributions particulières vont en augmentant. Cette année la quête pour les tuberculeux a rapporté plus de 700,000 lei. Les Caisses d'assurances ouvrières commencent à s'émouvoir et se décident à agir. Le connivence avec la Société pour la Prophylaxie de la Tuberculose elles sont en train de faire construire un grand sanatorium de 250-300 lits à Torya en Transsylvanie où les meilleures conditions comme climat et comme altitude sont réunies.

La Société pour la Prophylaxie de la Tuberculose aménage elle aussi à Torya—où elle a acquis un vaste domaine—un sanatorium de près de 100 lits, où les malades pourront trouver réalisées des possibilités de traitement à la hauteur des établissements les mieux réputés des autres pays.

La lutte contre la tuberculose prend ainsi quelque envergure dans notre pays et dans peu d'années nous comptons : présenter un bilan d'activité qui pourra soutenir la comparaison—toute proportion gardée—avec ceux des pays où cette lutte est mise à sa vraie place parmi les mesures hygiéniques, qui doit être la première, la tuberculose continuant encore à être la plus répandue et la plus meurtrière des maladies épidémiques.

KINGDOM OF SERBS, CROATES, AND SLOVENES.

PAR DR. STAMPER,

Chef de la Section d'Hygiène.

LA lutte contre la Tuberculose est un des devoirs les plus difficiles de notre Ministère parce que cette maladie est très répandue dans notre pays de manière que sur 10,000 habitants 50 en sont morts par an.

Les circonstances mauvaises de l'habitation et la manière de vivre sont la principale cause dans la propagation de cette maladie. Surtout, les enfants dans leur première jeunesse sont nombreusement attaqués. Dans la lutte contre la Tuberculose nous avons le programme suivant, la première tâche c'est la Propagande. Elle se manifeste, principalement dans le Grand nombre de conférences populaires accompagnées toujours de projections et de films instructifs dans tout le pays.

C'est la mesure la plus efficace pour faire connaître au peuple cette maladie.

Nous préparons l'arrangement des expositions ambulatoires de la Tuberculose. Les moulages exposés viennent de l'Institut Henning de Vienne qui est bien connu.

Le journal officiel de notre Ministère, 'Glasnik,' les journaux populaires 'Zdravlje' (La Santé) et le journal hebdomadaire, 'Le Gardien de la Santé,' consacrent de nombreux articles à la Tuberculose et sa prévention.

Comme le besoin de médecins spécialistes est très grand dans notre pays, notre Ministère a envoyé, pour le moment 5 médecins pour mieux étudier les méthodes de l'organisation de la lutte contre la Tuberculose dans les pays étrangers.

A Zagreb (Agram) nous avons installé une école spéciale pour élever "les sœurs de dispensaire et visiteuses," la première partie va sortir en janvier, 1922. Comme l'école permanente pour l'éducation "des sœurs" on bâtit maintenant à Belgrade une école pour 100 élèves, et une autre à Sarajevo pour 40.

Ces bâtiments seront terminés au cours de l'année prochaine.

Jusqu'à présent nous avons installé 25 dispensaires pour les tuberculeux et ils travaillent avec succès.

Nous avons un grand besoin de Sanatoriums populaires et nous commençons avec les sanatoriums pour les enfants, avec les écoles en plein air, les sanatoriums pour les enfants scrofuleux sur la mer Adriatique.

SOUTH AFRICA.

By DR. L. G. HAYDON,

Assistant Health Officer, Union of South Africa.

PREVIOUS to the promulgation of the Public Health Act for the Union of South Africa on January 1st, 1920, the combative measures comprised the following:

(1) The periodic medical examination by Government officials of scholars in Government and Government-aided schools, and, in respect of the indigent cases discovered, free advice and home treatment.

(2) The medical examination of native labourers seeking employment within the boundaries of certain industrial and urban areas.

(3) Special modern institutional provision for European cases of phthisis contracted in the gold-mining areas of the Transvaal—a measure partly financed by Government and partly by mine-owners.

(4) A certain amount, limited in extent, of provision in Government and Government-aided general hospitals for the accommodation of cases—white and coloured.

(5) Efforts, limited in extent, by some of the larger municipal corporations in the direction of the control of actual cases and education of the public.

Since the promulgation of the Union Public Health Act the above measures have continued in operation, and the following progress has been made :

(1) Tuberculosis recognisable in clinical form has been made a notifiable disease throughout the Union, and the necessary information is being collected as to the prevalence of the disease in each district.

(2) The duty of instituting proper measures to control the spread of infection, and to provide approved treatment, institutional and otherwise, has been placed on local authorities, which may for convenience and economy of administration be grouped for special purposes, especially for the provision of institutional treatment. Expenditure on such measures is divided between local authorities and the central Government.

(3) The institutions existing and under construction for the reception, treatment and vocational training of cases are :

(a) Serving the Transvaal Province, a large modern institution with ample land, and other facilities for extension, at Spring-Kell, near Johannesburg.

Eighty-five beds are at present available for European cases.

(b) To serve the Cape Province, an institution under erection, having a very large area of arable and pastoral land, at Nelspoort, situated in a particularly dry and healthy position. The scheme is being jointly financed by private donations, the combined municipal corporations of the province, and by the Central Government.

The immediate preparations are for 100 beds, but it is aimed to provide good-class plain nucleus buildings, including a hospital of twenty-five beds, with detached European and coloured blocks of between thirty and forty beds each, together with nurses' quarters, medical officers' residence, etc. This accommodation can be supplemented later on by chalets and buildings of cheaper construction.

(4) Legislative powers exist whereby both the Central Government and the municipal and other local authorities may make provision for the safeguarding of food supplies (including milk) from the danger of tubercular infection.

These powers are being increasingly utilised.

SPAIN.

BY DR. MALO DE POVEDO.

MADRID AND SURROUNDINGS.

DESPATCH, by the Board of General Health Inspection, of summer schools and holiday colonies to the sanatoria of Chipiona and the National Marine Sanatorium of Oza.

Despatch, by the antituberculosis dispensaries of the capital, of batches of children to the seaside sanatoria of Oza (Coruña) and Pedrosa (Santander).

Expenditure of 4000 pesetas in pictorial propaganda by means of posters, distributed among the different institutions which took part in the "Tuberculosis Day" (Flower Festival), and in picture postcards reproducing the poster.

Installation in the popular antituberculosis sanatorium "Victoria Eugenia" of a formaline disinfection room, a surgery, and an operating theatre, a dark room for photography and a library. This work was carried out by the Director of the Sanatorium, Dr. Codina, by means of a legacy of 7000 pesetas from a patient of his, Señorita Isabel Font.

Building of a new ward for twelve beds in the same sanatorium. This work is in an advanced stage and all expenses are met by Her Excellency the Marquesa de Argüelles.

Acquisition of a sanatorium in an advanced stage of construction, situated in the Guadarrama mountains, which is to be called the "Lago Sanatorium." It will contain 100 beds and will be supported by a system similar to that of the Oza and Pedrosa Sanatoria.

PROVINCES.

Alicante.—Establishment of an antituberculosis dispensary, the bye-laws of which have been approved by the Central Committee.

Barcelona.—Establishment of a tuberculosis ward by the Quinta de Salud "La Alianza," state-aided to the amount of 5000 pesetas.

Cádiz.—Establishment in Cadiz of an antituberculosis dispensary, fully supported.

Córdoba.—Establishment of an antituberculosis dispensary in Córdoba, and proposal for the establishment of a sanatorium in the mountains of Córdoba.

Granada.—Scheme for the establishment of a state-supported antituberculosis dispensary and sanatorium in Granada.

Málaga.—Acquisition in Málaga of a building presented by Messrs. Larios for a children's sanatorium, and establishment of an antituberculosis dispensary.

Murcia.—Continuation of the work on the Private Sanatorium of Spain, with a Government grant of 20,000 pesetas.

Santander: Pedrosa.—Opening of the ward “Infanta Beatriz” in the National Marine Sanatorium of Pedrosa.

Unveiling in the same sanatorium of the statue dedicated to the Inspector General of Health, His Excellency Dr. Manuel Martin Salazar.

Establishment and opening of an antituberculosis sanatorium in Santander.

Segovia.—Re-organisation of the Royal Antituberculosis Dispensary “Infanta Isabel” which had been shut on the death of its director and founder.

Seville.—Building at Dos Hermanas by the Provincial Antituberculosis Committee of Seville of an antituberculosis sanatorium. The work has reached an advanced stage.

Valencia: Malvarrosa.—Continuation of the work on the National Marine Sanatorium of Malvarrosa. The work is nearing completion.

SWEDEN.

BY MONSIEUR C. CEDERCRANTZ.

THE aim of the Association is to co-ordinate and lead the voluntary work against tuberculosis in Sweden.

The number of members amounts to about 20,000. H.R.H. the Crown Prince is the Chairman of the Council. With the national organisation are associated partly county associations, and partly smaller local organisations throughout the whole country.

The *income* of the Association consists partly of the annual fees of the members, partly of the revenues of charity stamps and luxury telegram forms. The total income for the year 1921 amounted to 751,114.93 Swedish crowns (about £44,000).

The chief aim of the National Association is the *prevention* of tuberculosis, information by means of lectures and popular pamphlets, measures aiming at improved personal and home hygiene, the protection of children from tuberculous households, as well as protective measures against infection in different industrial trades.

These are some points that have more especially absorbed the interest of the Swedish National Association.

Besides this our Association has started some social-hygienic experiments, as well as investigations regarding various questions connected with the campaign against tuberculosis.

THE FIGHT AGAINST TUBERCULOSIS IN SWEDEN.

Hospitals and sanatoria.—Every county has its own sanatorium erected by the County Council. To the building expenses the State has contributed 1000 kr. per bed, during later years 2000 kr. Likewise the State contributes

to the general working expenses with 2-1½ kr. per day. These hospitals receive consumptive patients in all stages.

For early stages there are the *Jubilee Fund Sanatoria*, four in number, erected by the aid of money collected within the whole country on the occasion of King Oscar II's twenty-five years' jubilee as King in the year 1897.

Besides this there are some *private* sanatoria, of which Romanäs and Sāvajō may especially be mentioned.

The number of beds available for consumptives within the country amounts to 4742.

Dispensaries.—In the larger towns as well as in many places in the country we have tuberculosis dispensaries. These are supported partly by the State, partly by the County Councils or parishes, besides which the National Association against Tuberculosis contributes with about 300,000 kr. a year.

Cases of *scrofula* and surgical tuberculosis were formerly generally treated at the county hospitals. During recent years the larger towns (Stockholm, Göteborg and Malmö) have established special hospitals for these diseases. Along the west Coast of Sweden—thanks to the initiative taken by *private* organisations—three coast-sanatoria have been erected.

Finally, we have homes for the reception of healthy children from tuberculous families, recreation homes, day and summer sanatoria, etc., most of them organised by private associations.

SWITZERLAND.

PAR LE DR. BACHMANN.

MONSIEUR LE DR. MORIN, le Président de l'Association suisse contre la Tuberculose vous a donné l'année dernière à Paris un exposé assez détaillé des organisations et des moyens dont nous disposons en Suisse pour la lutte antituberculeuse.

Comme la Suisse, se composant de 22 cantons autonomes, est un pays fortement décentralisé il en est de même pour les œuvres antituberculeuses. Nous avons une association suisse, en quelque sorte une commission centrale, avec une section scientifique et des ligues antituberculeuses cantonales, qui développent, surtout dans les grandes villes et les centres industriels, depuis des années une activité féconde.

La lutte antituberculeuse est due uniquement à l'initiative privée, le gouvernement fédéral n'ayant donné jusqu'à présent aucune subvention. Il va de soi que les organes des ligues telles que les dispensaires antituberculeux travaillent en contact intime avec le service d'hygiène publique local et avec les œuvres privées d'utilité publique.

Je ne veux pas entrer en détail sur la lutte antituberculeuse en Suisse, car les grandes lignes de ce combat sont en somme dans chaque pays les mêmes à savoir : l'hospitalisation des malades dans les sanatoria et les hôpitaux, la prophylaxie dans toute son étendue et la protection de l'enfance en particulier. D'après le caractère différent d'un pays ou d'une région et suivant l'importance qu'on attache à tel ou tel point pour combattre ce fléau, la lutte antituberculeuse se montre sous un aspect un peu différent d'un pays à l'autre.

Pour vous donner une idée du travail dans les dispensaires je me permets de vous en donner un petit exemple. La ville de Zurich avec 200,000 habitants, possède 2 dispensaires antituberculeux. Le rapport de l'année passée mentionne 4500 examens médicaux avec 1700 cas montrant des symptômes de tuberculose active. Les infirmières-visiteuses ont fait 8600 visites à domicile. On a dépensé pour les soins des malades à domicile fr. 44,000 ; pour ceux que l'on plaçait dans des sanatoria ou des hôpitaux, 16,000 frs. ; les dépenses pour des cures d'air, pour l'école en pleine air s'évalue à fr. 6000. Les dépenses totales de la lutte antituberculeuse pour cette ville montent à 125,000 frs.

Nous avons en Suisse 106 dispensaires et 16 sanatoria avec 1500 lits.

A part l'Association suisse et les ligues cantonales la Société d'utilité publiques des femmes suisses s'occupe aussi activement de la lutte antituberculeuse en collaborant aux travaux des ligues, et la Société suisse de la Croix rouge a de même inscrit dans son programme de paix la question de la tuberculose. Pour la protection de l'enfance, un point capital dans la lutte antituberculeuse, la Suisse a déjà fait de grands efforts. Sanatoria pour enfants scrofuleux, écoles en pleine air, colonies de vacances, cures d'air de soleil et de gymnastique musculaire et respiratoire existent en Suisse en grand nombre.

La grande question à l'ordre du jour à savoir, si on peut immuniser en grand par injection intradermique les enfants donnant un Mantoux positif nous préoccupe aussi en Suisse et des essais encourageants ont déjà été faits.

Un autre détail important, le placement des tuberculeux qui quittent les sanatoria, et la possibilité de trouver de l'occupation pour les tuberculeux si nombreux, qui ne peuvent travailler que quelques heures par jour, rencontre beaucoup de difficultés. C'est encore dans différentes ligues que l'on se préoccupe à résoudre ce problème avec succès.

On a reconnu en outre qu'il fallait s'occuper en Suisse encore davantage des cas de tuberculose chirurgicale. Il s'agit en premier lieu de créer des sanatoria populaires spéciaux pour ces cas. Une commission suisse spéciale s'est chargée de cette tâche.

Le service suisse d'hygiène publique estime que de 1901 à 1918 les progrès de la lutte rationnelle contre la tuberculose ont sauvé 30,000 vies humaines.

Pour l'ensemble de la Suisse et en envisageant toutes les affections tuberculeuses la mortalité a baissé en 30 ans de 29.2 à 20.0 pour 10,000

habitants. Cette diminution pour les seules tuberculoses pulmonaires est de 20·7 à 14·3.

Il ne nous manque maintenant qu'une loi fédérale contre la tuberculose, donnant plus d'appui au travail des organisations privées. Cette loi a été élaborée par le service fédéral de l'hygiène publique et est prête à être soumise aux délibérations des chambres et au votes du peuple suisse.

Cette loi prévoit la déclaration obligatoire des tuberculeux contagieux en cas de décès, de changement de domicile et lorsque les précautions nécessaires pour prévenir la contagion ne peuvent être prises. La loi prévoit en outre l'internement des malades dans les hôpitaux spéciaux (sanatoria, divisions hospitalières), l'examen gratuit des excréments suspects, les mesures de désinfection et d'assainissement, l'interdiction d'expectorer dans les locaux publics et des subventions importantes aux cantons et aux ligues pour leurs dépenses en faveur des tuberculeux et des institutions antituberculeuses.

Lorsque cette loi aura été promulguée ce qui, nous l'espérons, ne saurait tarder, le pays entier sera doté d'un armement antituberculeux complet et les résultats de la lutte seront supérieurs encore à ceux obtenus jusqu'ici par la bonne volonté des institutions philanthropiques dûes à l'initiative privée.

UNITED STATES OF AMERICA.

By PHILIP P. JACOBS, Ph.D.,

Publicity Director, National Tuberculosis Association.

I. PAST HISTORY.

To get a true conception of the present organisation for the control and prevention of tuberculosis in the United States, one must look back a few years and trace the history of its development from relatively small beginnings to a campaign of remarkable proportions in 1920.

(1) *Beginnings.*

Strictly speaking, the beginning of the tuberculosis campaign in the United States dates back to the pioneer vision and effort of Dr. Edward Livingston Trudeau at Saranac Lake, N.Y. It is true that institutions for the treatment of tuberculosis had been started prior to Trudeau's breakdown with the disease. As early as 1857 the Channing Home, named after the famous Unitarian divine, had been established in Boston, and in 1875 Dr. Joseph W. Gleitsmann established the first private sanatorium at Asheville, N.C. It remained, however, for Trudeau to sense the significance of Koch's momentous discovery, and become the first apostle not only of the curability

but also of the prevention of tuberculosis. The establishment of the Adirondack Cottage Sanatorium (now known the world over as the Trudeau Sanatorium) in 1884 and, later, of the Saranac Laboratory was in reality the beginning of the campaign against tuberculosis in the United States.

As might have been expected, the first emphasis of the tuberculosis movement was laid upon cure. Early research and writings, as well as the early institutions, all stressed this one feature. Slowly but surely the sanatorium movement, particularly for the treatment of persons of moderate means, began to take root, and, following Trudeau's example, institutions were established in various parts of the country for working men and working women. All of these institutions made provision for treatment at moderate costs within the range of the patient's ability to pay, or received patients through the city or county poor authorities of their home communities. The Sharon Sanatorium, established in 1891 at Sharon, Mass., through the vision of Dr. Vincent Y. Bowditch, was the first demonstration that tuberculosis could be cured in any climate. Loomis Sanatorium established in 1896 at Liberty, N.Y., White Haven Sanatorium established in 1901 in White Haven, Pa., Agnes Memorial Sanatorium established in 1904 at Denver, Colo., Gaylord Farm Sanatorium established in 1904 at Wallingford, Conn., are all fruits of that early development started by Dr. Trudeau and fostered by Dr. Bowditch.

In 1898 Dr. Bowditch secured the establishment through the Massachusetts Legislature of the first State institution for the treatment of tuberculosis on the American continent. The significance of this step, in view of the present emphasis upon public responsibility for institutional care, can hardly be over-emphasised.

(2) *The Preventive Movement.*

Five years after the discovery of the tubercle bacillus steps were taken to prevent and control the disease. In 1887 Drs. Hermann M. Biggs, T. Mitchell Prudden and H. P. Loomis sent an epoch-making communication to the New York City Health Department. In it they called attention to the communicability of tuberculosis, and urged education for the general public, and tuberculous families in particular, and also suggested the necessity for reporting of living cases of the disease. As a result of this memorial the Department of Health of New York published and distributed widely the first leaflet on tuberculosis in the United States.

The year 1892 marks another beginning. In that year Dr. Biggs joined the staff of the New York City Health Department, and secured the adoption of a resolution requiring public institutions to report living cases of tuberculosis and requesting physicians to report private cases; and providing for visitation of homes by inspectors and disinfection after death or removal of tuberculosis cases. In 1897 this voluntary reporting was made compulsory—the first legislation of its kind in the world.

The year 1892 marked also the formation of the first tuberculosis association in the world, the Pennsylvania Society for the Prevention of Tuber-

culosis, formed by Dr. Lawrence F. Flick of Philadelphia. From this pioneer effort at non-official organisation developed similar associations in Rochester (1897), New York (1902), Boston (1903), Buffalo (1904), Baltimore (1904) and elsewhere.

In 1903, due again to the enthusiasm and interest of Dr. Flick, the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis was established and endowed by Mr. Henry Phipps, of Philadelphia. This Institution, standing primarily for research as the foundation of any progressive tuberculosis movement, marked a new era in the development of the campaign against tuberculosis in America. Its accomplishments, both in medical and pathological research on the one hand and in sociological research on the other, have influenced the development of the entire tuberculosis movement in the United States.

The formation of the National Tuberculosis Association (originally known as the National Association for the Study and Prevention of Tuberculosis) was brought about by the interest and enthusiasm of the late Sir William Osler, William A. Welsh and their colleagues at the Johns Hopkins University and the Maryland State Board of Health, together with such workers as Dr. S. A. Knopf, Dr. Vincent Y. Bowditch, Dr. E. O. Otis, Dr. Alfred Meyer, Dr. Lawrence F. Flick and others. On January 28th, 1904, on the occasion of the first tuberculosis exhibit in America in Baltimore, the initial meeting for the purpose of considering a national tuberculosis association was called. Two months later at another meeting, held in Philadelphia, it was definitely decided upon by the group present, consisting of many of the leading physicians of America, that a national association should be formed, and in June of 1904, on the occasion of the annual meeting of the American Medical Association, the National Association for the Study and Prevention of Tuberculosis became a reality, with Dr. Edward Livingston Trudeau, the pioneer of the American movement, as its first president.

(3) Growth of Organisation in the United States and Present Status.

When the National Association for the Study and Prevention of Tuberculosis, following its organisation in 1904, opened its first office in 1905, with Dr. Livingston Farrand as Executive Secretary, there was practically no such thing as an organised movement against tuberculosis. Here and there sporadic efforts had been started. In Boston, New York, Philadelphia, Chicago, Baltimore, Columbus, Ohio, Buffalo, Rochester and a few other cities some signs of activity were apparent. West of the Mississippi River practically no organisation had been attempted, if one may except the private sanatorium movement in the south-west. There were approximately 100 institutions, public, private and semi-philanthropic, in existence on January 1st, 1905. There were only 18 special tuberculosis dispensaries, and less than a half-dozen really active associations, although there were probably 18 so-called associations and committees in existence. The entire

amount of money spent by the campaign against tuberculosis in 1905, if one may call these scattered efforts a "campaign," would probably aggregate a few hundred thousand dollars a year, including the cost of maintenance of institutions and all other expenses. The total budget of the associations, representing the propaganda and organisation effort against tuberculosis, did not total \$50,000 a year.

To-day there is an active business-like State association in every State of the Union and in the District of Columbia, as well as in the outlying territories of Hawaii and the Philippine Islands, with a certain amount of effort in Porto Rico, the Canal Zone, Alaska and elsewhere. In addition there are 1200 local associations, many of them with full-time executives, scattered throughout the United States in practically every large centre of population. The budget of these organisations in 1921 aggregated \$4,000,000.

Coincident with the development of associations for the prevention of tuberculosis has been the growth of institutions for the treatment and control of this disease. One of the first activities of most of the associations has been to secure a public or private sanatorium or hospital. The growth of this activity as contrasted with that of 1905 may be visualised thus: There are at the present time over 700 hospitals and sanatoria for the treatment and prevention of tuberculosis in the United States. Their aggregate bed capacity is in the neighbourhood of 50,000. The annual expenditures of these institutions is considerably over \$20,000,000.

The growth of dispensaries and clinics is also significant. From a handful in 1905, this movement has grown until there are to-day over 600 such agencies, most of them with well-trained staffs of physicians and nurses in charge. The travelling clinic has besides brought facilities for diagnosis, advice and treatment to thousands of communities where the stationary institution could never reach.

The development of tuberculosis and public health nursing in America within the last fifteen years is one of the most interesting chapters in social work of the last fifty years.

The first tuberculosis nurse in the United States began duty in Baltimore in 1904. From that pioneer beginning has developed not only a very large staff of nurses devoting most of their attention to tuberculosis patients in their home, but also, to a marked degree, the entire public health nursing movement. It is difficult to ascertain how many tuberculosis nurses there are at the present time in the United States. So many so-called tuberculosis nurses are doing work other than with tuberculosis cases, while general public health nurses, on the other hand, are devoting considerable attention to this disease. Estimating, however, from such data as may be secured, one may safely say that not less than 6000 nurses in the United States at the present time are giving considerable attention in their daily routine to tuberculosis cases in their homes or clinics.

The history of the open-air school in the United States dates from 1908. The first school of this sort was established in Providence, R.I., by

Dr. Ellen R. Stone. To-day the open-air school movement embraces not only tuberculous children, but anæmic and malnourished ones and a very considerable number of normal children as well. If one were to include under this category all types of fresh-air classes and special rooms for these three groups of children, the total would no doubt run up to 3000 and possibly more. It is difficult to ascertain the total number of open-air schools and classes because of new ones springing up almost daily.

(4) *The Function of the Christmas Seal.*

Much of the success of the campaign against tuberculosis in the United States has been due to the Christmas seals. This annual holiday messenger has afforded not only the means for financial support, but also one of the principal educational channels through which the message of tuberculosis has been brought to the American people.

As the National Association began to develop, it very wisely adopted the policy in its early days of forming independent and autonomous State and local anti-tuberculosis associations, maintaining that the function of the national body was not to dictate to, but rather to supervise and standardise local and State activities.

The increasing number of associations, however, forced upon the National Association the responsibility of providing for these new societies both means of support and also programmes of work. Up to the advent of the Red Cross seal this was an extremely difficult thing to do. In 1910, following two years of independent effort on the part of the American Red Cross, the National Association for the Study and Prevention of Tuberculosis and the Red Cross formed an alliance to handle the Christmas seal sale. This was the most significant step in the development of the entire tuberculosis movement in America. As a result of this alliance, the National Association was furnished at once with the facilities whereby it could provide money to finance its State and local associations and could at the same time standardise programmes of work. This two-fold accomplishment was brought about by the adoption of certain definite policies, chief among which may be mentioned the following: First, that the major portion of the proceeds derived from the Christmas seal sale shall remain in the community where the seals are sold; second, that the National Association shall be the exclusive appointing agency on behalf of the American Red Cross; third, that its agents in turn shall appoint subagents only within definitely designated territory, that is, usually within State boundaries; and fourth, that the money derived from the seal sale shall be used only for anti-tuberculosis work as defined by the National Association.

The adoption of these policies provided the means at once for the financing of local, State and national work. At the same time the National Association could compel on the part of State associations a recognition of better standards by the simple expedient of giving or withholding the contract for the sale of seals. Similarly, the State association could compel

a higher grade of work on the part of the local associations. The Christmas seal also became both in the hands of the National and the State associations the most helpful entering wedge for the development of new and hitherto unorganised territory. By securing the support of an influential small group in a community to sell the Christmas seals and to raise a small fund, in hundreds of communities the foundations have been secured upon which a permanent organisation has been built. It is the universal consensus of opinion that the Christmas seal is not only the best means of financial support for the tuberculosis movement, but it is also the best channel for education. It affords an annual opportunity for bringing before the people of America in a dramatic manner the needs and programme of the tuberculosis campaign. In presenting these needs, inevitably the purposes of the tuberculosis campaign must be stated, with a resultant effect in education of the public, both young and old.

In 1920, for the first time, the Christmas seal sale was conducted entirely independently of the American Red Cross—a tuberculosis Christmas seal sale exclusively, not a Red Cross Christmas seal sale. The development of the programme of the American Red Cross has necessitated its withdrawal from the alliance with the National Association, begun in 1910. The outlook for this independent effort at the present time is extremely encouraging. The campaign will be held from December 1st to 11th. The sum of \$3,650,000 raised for the work of the anti-tuberculosis associations in 1920, and a little sum in 1921. Of this sum the National Association will receive 5 per cent. for its own support. The State associations will receive percentages of varying amounts, ranging from 5 per cent. in certain more highly organised communities to 100 per cent. in other unorganised communities. The State and local associations buy their seals and supplies for the most part from the National Association, paying for them in cash.

II. THE ORGANISATION MOVEMENT IN 1921.

Statistics are not available for giving an accurate summary of all the money being spent in the campaign against tuberculosis in the United States during a given year. From certain data that are available, however, one may estimate that the entire movement, including organisations, institutions, dispensaries, nurses, and both public and private agencies, will spend during the current year of 1921 no less than \$40,000,000. This gigantic organisation, for purposes of general administration, is divided into six districts by the National Association as follows: New England, North Atlantic, Southern, Mississippi Valley, South-western and North-western. A brief summary of the campaign in each of these districts will help to give a picture of the organisation as it is at present.

(1) *New England District.*

The New England District embraces the States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island. The district is

one of the most intensively organised industrial centres of America. Its mills, factories and transportation facilities give to the tuberculosis campaign a peculiar industrial character that is more pronounced here than anywhere else in the United States. This is particularly evident in such centres as Boston, Providence, New Haven, Hartford, Springfield, Barre, and elsewhere. To be sure there are rural problems, but for the most part the tuberculosis problems are industrial.

The campaign against tuberculosis is well organised in the New England States. There are strong State associations in each State and a considerable number of active local associations. In Connecticut the State Tuberculosis Commission acts in the capacity of State association. Among the local associations one may mention particularly those in Boston, Providence, New Haven and Springfield as significant. There are State sanatoria in all of the States—two in Maine, one in New Hampshire, one in Vermont, four in Massachusetts, two in Rhode Island, and five in Connecticut.

Massachusetts is probably the best developed of the States. It has an excellent State Department of Health, with a commissioner's staff and eight district health officers, besides a considerable number of full-time local health officers. There are over 50 local dispensaries and 38 local hospitals and sanatoria in addition to the 4 State institutions above mentioned. The State Tuberculosis League and the 37 local societies make a reasonably complete fighting machine.

In Massachusetts is located also the Framingham Health and Tuberculosis Demonstration conducted by the National Tuberculosis Association. This demonstration is financed by a special grant from the Metropolitan Life Insurance Company, and has been in operation somewhat over three years. Its purpose is to endeavour to show how an average American community can control tuberculosis by a reasonable expenditure of money. While the demonstration is not yet complete, the results achieved to date are most gratifying. A complete report of the work of the demonstration will be found in the several monographs that have already been published and will be published from time to time.

(2) *North Atlantic District.*

The North Atlantic district comprises the States of New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia and the District of Columbia. The problems of this district are somewhat more diverse than those of the New England district. The large cities furnish an intensive industrial and manufacturing problem. States such as West Virginia and Pennsylvania provide a mining problem, while others such as New Jersey and Maryland and Delaware are largely agricultural, with a considerable mixture of fisheries among their principal problems.

There are strong State associations at the present time in each of the States with the exception of Delaware. In the latter State the movement is conducted largely by a State Tuberculosis Commission financed out of State

funds. There are State sanatoria in all of the States—one in New York, three in Pennsylvania, two in Delaware, one in Maryland, one in the District of Columbia, one in New Jersey, two in West Virginia, and three in Virginia. In Delaware, Virginia and West Virginia are the only three State sanatoria for the treatment of negroes in America. The negro problem in these States is acute. The State health work is well organised in some of the States, such as New York, Pennsylvania, New Jersey, Maryland and Virginia, but not so well organised in others, as, for example, in West Virginia and Delaware.

New York State undoubtedly leads in the development of its campaign. The New York State type of campaign has been the model for most of the States throughout the country. The work has been developed largely by the New York State Charities Aid Association through its Tuberculosis Committee in co-operation with the State Department of Health. The unit of organisation is the county, and the development of institutional, nursing, dispensary and other health features in the county is the goal of each local organisation.

(3) *Mississippi Valley District.*

This group of States comprises the following: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. The Mississippi Valley is unquestionably the richest agricultural section of America, and its problems in tuberculosis and public health are to a very considerable degree rural and agricultural in character. It has also, however, some serious industrial problems, such as are found in the large centres of population like Chicago, St. Louis or Detroit. The development of the campaign in the Mississippi Valley States has been the most rapid compared with those in any other parts of the country, and is due in a very considerable degree to the spirit of loyalty manifested among the States toward the Middle West or Mississippi Valley section.

It is difficult to select any one as outstanding in its organisation. Wisconsin has probably developed its organisation in many respects further than most of the States. Illinois, on the other hand, is doing some unusually fine work in the formation of local associations and in the securing of local hospitals and other facilities. Ohio has probably the most satisfactory official health development of any of the States in the Mississippi Valley. Minnesota similarly is leading the way not only in its institutional facilities, but in the formation of local public health and tuberculosis associations.

There are State sanatoria in a number of the States. Illinois has no State sanatorium, but it has thirty-two county sanatoria in operation or provided for; Indiana has one State sanatorium; there are two in Iowa, one in Michigan, one in Minnesota, one in Missouri, one in Nebraska, one in North Dakota, one in Ohio, one in South Dakota, and three in Wisconsin, one of which is not yet in operation.

(4) *Southern District.*

The peculiar outstanding problems of the Southern States are first of all the negro, and secondly the rural and agricultural character of the popula-

tion. With these go a mixture of industrial conditions ranging all the way from the isolated cotton mills in the small towns to the intensive industrial and manufacturing conditions of the large cities, such as those in Atlanta, Birmingham, Memphis, or Chattanooga, for example. The negro tuberculosis problem for the most part is relatively untouched. There are a few efforts here and there, notably those in North Carolina, Atlanta, and in certain sections of Tennessee. The negro tuberculosis death-rate generally ranges from two and a half to four times that of the white death-rate. The relative poverty of the South as contrasted with some of the wealthier industrial and agricultural sections of the country has no doubt retarded tuberculosis and public health work. The health machinery in the Southern States is not what one finds in the North Atlantic or the New England States. There is a woeful lack of full-time State or local health officers. There is less community consciousness with regard to health needs. These conditions will undoubtedly improve as a result of increasing health education. In North Carolina, for example, notable progress along these lines is now being made.

Of the facilities in the Southern States for the prevention of tuberculosis much that is needed is lacking. There are State sanatoria in some of the States, such as Arkansas, Georgia, Mississippi, North Carolina and South Carolina. The county hospital, so common in the North Atlantic or Mississippi Valley States, is relatively unknown in the South. Local provision for the most part is still to be made. Nevertheless, the campaign is making progress, and every year is showing a significant advance over the year preceding.

Of the various Southern States probably North Carolina in some respects is the most progressive. Its State Board of Health, its State Sanatorium, its staff of educational and nursing workers are exemplary in many respects. It lacks local educational and local institutional facilities. Georgia is also well developed in certain parts, but not well developed in other centres. Tennessee has within the last two years been making rapid progress along desirable lines, but large portions of the State are still practically untouched.

(5) *South-Western District.*

In the South-Western States one of the most peculiarly characteristic tuberculosis problems of the country exists, namely that of the indigent migratory consumptive. For the last forty or fifty years physicians have been accustomed to send patients to this section of the country because of certain so-called climatic advantages in altitude, temperature and aridity. In spite of the continuous educational effort on the part of the National Association and its affiliated agencies to prevent the sending of persons without sufficient funds to this relatively distant section of the country, they continue to go in considerable numbers. This problem in the south-west is not only a medical one, but a serious economic one. It gives colour to the entire tuberculosis movement in the seven South-Western States,

consisting of Arizona, California, Colorado, Kansas, New Mexico, Oklahoma and Texas.

Another feature of the south-western problem is the tremendous area to be covered. States like Texas or California are empires in themselves. There are practically no large cities, with the exception of Denver, Los Angeles and San Francisco. Mining, agriculture and stock-raising are the principal industries, although for the tuberculosis worker the sanatorium industry, particularly the private sanatorium, is of great importance.

Except for California and Oklahoma, most of the States are poorly equipped. There are private sanatoria in practically all of them, but they cater largely to eastern people and are not designed to meet the local problem, particularly for the men or women of moderate means. There are practically no public institutions outside of California and Texas, although Oklahoma is planning some new steps in this direction. Kansas and Texas have the only State sanatoria in the group.

The best-developed programme by far is that in California, where, through the influence of the Tuberculosis Association and the State Health Bureau working in close co-operation, a considerable amount of community organisation has been developed, not only in the large cities, but in some of the more rural communities.

(6) *North-Western District.*

The North-Western States, comprising Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming, are the newest in point of development. The outstanding problems peculiar to this section are, first of all, the immense area to be covered and the distances to be travelled, together with the somewhat difficult transportation facilities and the rural and agricultural character of the population. There are a number of mining problems also, especially in Montana, Utah, Wyoming and Idaho. Most of the work in the North-Western States is barely five years old. Some of it is not more than three.

Washington is probably the best developed State, having had its campaign under way since 1906. In this State not only is there a well-organised State association, but there are also strong organisations in thirteen counties, and county hospitals in five counties. The other States are rapidly developing educational and institutional facilities.

III. THE NATIONAL TUBERCULOSIS ASSOCIATION.

No picture of the organisation of the campaign against tuberculosis in the United States would be complete without a description of the National Tuberculosis Association, its organisation, functions and methods.

(1) *Relationships.*

The National Tuberculosis Association has been the genius behind the organisation of the campaign in the United States. It has not itself

organised all of the work, but it has to a very marked degree stimulated the organisation. As State associations have been formed in each of the forty-eight States and in the district of Columbia, the National Association has gradually discontinued more and more its direct dealings with local, that is, municipal and county associations, and has confined its dealings as much as possible to State associations. The relationship of the State and local associations to the National Association is entirely independent and autonomous. The National Association may, as has been indicated before, by virtue of the fact that it has the giving or withholding power of the Christmas seal contract, and by virtue of other powers delegated to it by the State associations, dictate to some measure the standards of work of the State associations. The relationship existing between the National and State associations is, however, to a large extent an advisory one. The National Association relies upon the State associations for most of its support through the Christmas seal sale, and naturally the State associations expect the National Association in turn to render service to them. In a word, the National Association is a servant of the State associations, and its ideal is expressed in the word "service."

(2) *Reorganisation of the Association.*

In order to meet the new conditions which had developed as a result of increasing State and local organisations throughout the country, in the spring of 1921 the Association board of directors was increased from 60 to 103. The new constitution provided for 50 directors at large and one representative director for each State and the affiliated association in New York, Brooklyn, Pittsburgh and Chicago, 53 in all.

(3) *Staff.*

In the organisation of the staff of the Association the division of labour is developed under six services. An outline of the work of each department follows:

(a) *Administrative service.*—The administrative service, as its name implies, is responsible for handling the organisation and administrative detail of the office and staff of the Association. Under it come the direction and co-ordination of the work of the various members of the staff. All of the business transactions of the Association, which during a normal year aggregate as high as \$300,000 and more, fall under this service. The bookkeeping and other financial departments are also under its direction. In general, the administrative service is the directing force of the entire organisation.

(b) *Field service.*—The field service, closely related to the administrative service, is immediately responsible for carrying out the Association's policies in the field. This is done largely by personal visits of the special field staff. Through surveys, individual conferences, group conferences, institutes, cor-

respondence and in many other ways the field staff keeps in constant touch with the various activities throughout the country. For purposes of convenience the country is divided roughly into certain field districts.

(c) *Medical service*.—The medical service has four distinct lines of work :

(1) The handling of all correspondence and other matters of the Association involving questions of medical detail, such as inquiries from patients regarding advice in the treatment of tuberculosis and the stimulation and promotion of medical activities in State and local associations.

(2) The promotion of medical education, with particular reference to tuberculosis through local and State associations, medical schools, conferences and in other ways.

(3) The establishing and promotion of standards for construction and maintenance of sanatoria, hospitals and open-air schools, of which there are nearly 2000 in the United States; and the study and promotion of occupational therapy, training and placement of arrested cases of tuberculosis.

(4) The promotion and standardisation of tuberculosis nursing. The secretary for nursing is in constant touch with the development of nursing work, and by means of conference, correspondence and publication of articles helps to promote interest in tuberculosis nursing, and to co-ordinate the nursing activities of tuberculosis associations with those of other State and national agencies in the field.

(d) *Modern health crusade service*.—The modern health crusade service is in immediate charge of the Modern Health Crusade, a movement for the health education of school children. Over 6,000,000 children were enrolled in the Crusade in 1920. This service originates new ideas for the Crusade, publishes literature dealing with the programme and organisation of the work, handles supplies necessary for carrying on the work, which in 1919 amounted to over \$125,000, and by conference, correspondence and bulletins stimulates and promotes interest and high standards. Every State organisation and most of the local organisations are doing crusade work.

(e) *Research service*.—The research service falls into certain definite lines, as follows :

(1) The study of particular problems, such as the indigent migratory consumptive, the economic loss from tuberculosis, the decline of the death-rate, etc.

(2) The editing and preparation for publication of the various monographs and pamphlets put out by the Association. This involves collecting of new material, such as that for the Tuberculosis Directory, the preparation of the 'Transactions,' and the compilation of information on new literature and new happenings for the 'Bulletin' and the 'Journal of the Outdoor Life.'

(3) Cataloguing, filing and indexing of the literature, books and pamphlet material of the office, so that it may be made available for immediate study by all members of the staff and by others who are interested. The Association library is gradually developing a complete bibliography on

all of the social phases of the tuberculosis problem and on many of the medical phases.

(f) *Publicity and publications service.*—The publicity and publications service carries on a number of different activities, such as—

(1) The handling of publicity, particularly for newspapers, magazines and other periodicals.

(2) The publishing of the 'Journal of the Outdoor Life,' the 'Monthly Bulletin,' and the 'American Review of Tuberculosis,' including the soliciting of subscriptions, securing of advertising and the editing of these publications.

(3) The preparation and direction of the loan service, which includes the loan, rental and sale of motion pictures, lantern-slides, photographs, cuts, special scrapbooks, etc.

(4) The direction of the Christmas Seal Campaign, membership campaigns, and other special campaigns carried on by the Association, together with the promotion of such campaigns in state and local communities.

(g) *Framingham Demonstration.*—In addition to the work of the six services outlined above, the Framingham Community Health and Tuberculosis Demonstration is under the direction of a special committee of the Association. The Executive Officer of the Demonstration is an Assistant Secretary of the Association, and the work, while conducted at Framingham, Mass., is in very close relationship to that of the rest of the staff.

(4) *Functions.*

Briefly stated, the functions of the National Association may be grouped under these heads: Education, study and investigation, organisation, standardisation, demonstration and legislation.

In exercising the function of education, the National Association adopts the broad policy of serving as a clearing-house for educational material for campaigns of national significance, such as the Modern Health Crusade, Tuberculosis Sunday, Christmas Seal and similar movements. The National Association also furnishes expert advice on publicity, as well as publishing three monthly publications, which serve as an exchange for scientific and lay articles both of a technical and general character. The three journals of the Association are the 'American Review of Tuberculosis,' a scientific journal with an international reputation, the 'Journal of the Outdoor Life,' the popular lay journal, and the 'Monthly Bulletin' or house organ.

Under the heading of "study and investigation," the Association not only does original research of a social character, but it aims to stimulate medical and social research of various kinds in all parts of the country. Through its publications, its annual meetings and in other ways, it has greatly stimulated medical research.

Under the heading of "organisation," the Association aims to provide for each community all of the machinery necessary for the control of tuberculosis. So far as possible the Association endeavours to secure full-time secretaries for State and local associations.

The function of standardisation is a vital one. In institutions, in organisations, in research, in nursing, and in various other fields, the rapid development of the work has brought about a great variety of standards, many of which are not of a high character. The Association is endeavouring gradually to raise the standard of work in all lines of tuberculosis activity.

Under the heading of "demonstration," the Association not only conducts the Framingham Health and Tuberculosis Demonstration, of which mention has been made before, but it endeavours in a variety of ways to exercise this vital function of private philanthropy, and to show to State and local associations as well as public officials how necessary certain forms of tuberculosis work may be.

In the field of legislation, the National Association not only endeavours to keep in touch with and to stimulate national and federal bodies engaged in tuberculosis and public health work, such as the United States Public Health Service, the Bureau of War Risk Insurance, and the American Red Cross, for example, but it also endeavours to secure necessary legislation, both Federal and State, for the control of tuberculosis.

(5) *Organisation.*

The National Association is governed by a Board of Directors, representing the various geographical and other interests of the tuberculosis campaign throughout the country. The present board consists of sixty members, but it is proposed to enlarge it, possibly to one hundred. The immediate government of the Association is in the hands of an Executive Committee elected by the Board of Directors. The administrative control of the Association is directly in charge of Dr. Charles J. Hatfield, Managing Director, and Frederick D. Hopkins, Administrative Secretary.

IV. RELATION OF THE TUBERCULOSIS TO THE PUBLIC HEALTH MOVEMENT.

Coincident with and, to a very considerable degree, as a result of the development of the campaign against tuberculosis, there has been in the United States during the last ten years a most remarkable growth of interest in general public health. This has manifested itself in a great variety of ways, such as, for example, the development of a considerable number of special national associations dealing with individual disease problems, including venereal disease, cancer, heart disease, infant mortality, etc., the rapid increase in the number of full-time and more adequately paid health officers, both State and local, together with the reorganisation of many of the leading State boards of health, including those in Massachusetts, New York, Ohio, and many others; and the stimulation of community health interest in all parts of the United States, manifesting itself especially in the movement for public health nursing. These are but a few of the ways in which the new spirit of public health is showing itself. In some States, as for example in New Mexico, Idaho, Oregon and New York,

the tuberculosis campaign has taken the initiative and has been the underlying force in the rejuvenation and the reorganisation of public health work. In others the tuberculosis movement has played a conspicuous but less leading rôle.

It is not surprising, therefore, that the tuberculosis movement in America is finding itself in very close relationship with the other large national agencies dealing in public health matters in the United States, such as the American Red Cross, the American Public Health Association, the International Health Board of the Rockefeller Foundation, the American Social Hygiene Association, the American Society for the Control of Cancer, and the various child health and infant welfare agencies, both public and private. A movement is now on foot for the formation of a national health council, which it is hoped will eventually co-ordinate all of the specialised activities without impairing the value of specialised effort, bids fair to be successfully consummated.

The National Association has furthermore been compelled to extend its influence and work beyond the borders of the United States, so that to-day it is in a real sense an international organisation. The successful campaign of the United States has become a model for movements in various parts of the world. Our literature and advice is being sought from the ends of the earth. Men and women trained in methods of the American campaign against tuberculosis are going out as missionaries to European, Asiatic and other countries around the globe. From Europe, Asia, Africa and elsewhere men and women are coming to America to study methods and programmes. It is a source of inspiration to us to know that our work is of sufficiently high calibre to attract leaders in tuberculosis and public health work from all parts of the world.

The National Tuberculosis Association took a leading part in the organisation of the National Health Council which was formed on December 10th, 1920, with the following members: American Public Health Association, American Red Cross, American Social Hygiene Association, Conference of State and Provincial Health Authorities of North America, Council on Health and Public Instruction of the American Medical Association, National Child Health Council, National Committee for Mental Hygiene, National Organisation for Public Health Nursing, National Tuberculosis Association, United States Public Health Service (Conference or Advisory Member). The primary aim of the Council is to co-ordinate health activities, to prevent duplication of effort, and to promote better work.

VI.

ANNUAL MEETING OF THE NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

ADDRESS BY DR. P. F. ARMAND DELILLE (PARIS).

VI.

**ANNUAL MEETING OF THE NATIONAL
ASSOCIATION FOR THE PREVENTION
OF TUBERCULOSIS.**

**ADDRESS BY DR. P. F. ARMAND DELILLE ON THE "PROTEC-
TION OF CHILDHOOD AGAINST TUBERCULOSIS BY
THE 'GRANCHER' SYSTEM."**

TUESDAY, 26th JULY, 1921.

CHAIRMAN: The Hon. SIR ARTHUR STANLEY, G.B.E.

THE Minutes of the Twenty-First Annual Meeting of the Association having been read and approved—

SIR ARTHUR STANLEY said: Ladies and Gentlemen,—I now have the pleasure of moving the adoption of the Annual General Report. I think you have all had a copy of it, and I will not therefore go into detail this afternoon.

There is one matter, however, that I cannot help mentioning, that is the deep regret that I feel you will all share. You have heard from the minutes that have just been read that, at the last annual meeting of our Council, the adoption of the report was seconded by our Treasurer, Lord Glenconner. It is with very deep regret that we have here to report the loss that the Council has sustained by the sad death of Lord Glenconner, who was, as I think most of you know, a man very averse to anything like publicity. The good that he did was done in private and without any ostentation, but he gave himself whole-heartedly to the service of all those who were in any way sick or suffering. We feel a very sad loss—a sore loss that we never can replace—on our Council by the death of Lord Glenconner.

Another loss we have to deplore is that of our President, Lord Balfour of Burleigh. For many years Lord Balfour of Burleigh had been the Chairman of this Council. He assisted it in every way with his wise counsel, with his vast experience, and it is difficult indeed for anybody to follow worthily in his place. When Lord Balfour felt that increasing work and age made it necessary for him to lay down the Chairmanship, it was quite clear that he was the right man to be the President of our Council and the President of

the Association. He accepted the position, and his active connection with this Association, as President, only ceased with his death. I am sure once more I am voicing the opinion of all of you when we record our very deep sense of the services rendered by Lord Balfour of Burleigh to this Association, and our profound and sincere sympathy with his family on his sad death.

I have now, Ladies and Gentlemen, the pleasure of making an announcement, or rather repeating an announcement which I made this morning.

As you are aware, this Association was founded under the direct personal auspices of His Majesty King Edward VII, when he was Prince of Wales. His Majesty presided at the initial meeting, which I think was held at Marlborough House when he was Prince of Wales, and he remained President of the Association until he succeeded to the Throne as King Edward VII. When that event took place, our present King George, who became Prince of Wales, accepted the Presidency of this Association, and he in turn remained in that position until he succeeded to the Throne as King George V.

For reasons which I have indicated, we did not at once ask the present Prince of Wales to become our President. It was felt that the post should be offered to Lord Balfour of Burleigh, who had done such good service for our cause. But within the last few days we decided that we should ask the Prince of Wales to fill the position that had been previously filled by his father and his grandfather, and it is with the utmost satisfaction that I am able to report to you to-day that I received a letter last night from Sir Lionel Halsey saying that the Prince of Wales was graciously pleased to accede to our request. (Applause.)

I feel sure that I can convey to His Royal Highness the expression of our deep gratitude and our profound pride that we have once more the Prince of Wales as our President. (Applause.)

Now, Ladies and Gentlemen, I said that as you had all got the Report I would not go into it in detail. I think we can say, generally, that the last year has been one of useful work. It has been one of interesting work, for this reason, that, as you have heard elsewhere to-day, the Association has now become definitely linked up with the great international movement against tuberculosis. Our connection with that international movement has been effected both through the International Union, which meets here as our guests to-day, and also through the League of Red Cross Societies. I am glad to tell you that at a meeting of the Council of the International Union this afternoon it has been arranged that the Inter-

national Union and the League of Red Cross Societies shall work together—at all events for the coming year. I feel perfectly certain that more will be gained by united effort, and that it is better that we should have one common centre for international work rather than two centres with possibly, sometimes, divergent views.

We are taking part in a great world movement. We are taking part in a fight with an enemy, as was well said this morning, that knows no mercy and has no frontier. On the other hand we are taking part in what one could not help feeling this morning was a winning fight. All the figures that were submitted show that the determined attack on tuberculosis is beginning to have result. If we of this country unite together with the determination that we shall stamp out the plague, and unite with foreign countries with the further determination that the plague shall be stamped out throughout the whole world, then I feel perfectly certain that a few years will crown our efforts with success. (Applause.)

The MARCHIONESS OF ABERDEEN: It is a great privilege to be allowed to identify one's self with the work of the Association by seconding the adoption of the Report. I think I will be serving the best interests of this meeting by not adding anything more except that I venture to emphasise, with all the force in my power Sir Arthur's glowing words that, in adopting the Report of this Association, we are calling on all our members to remember that we are engaged in a winning fight, and that everyone should go forth to the work which they are taking up in their own district in that spirit and with the absolute faith that we shall conquer. I have the honour and privilege of seconding the adoption of the Annual Report. (Applause.)

The Annual Report was adopted unanimously.

Thereafter the auditors of the Association and retiring members of Council were re-elected.

PROTECTION OF CHILDHOOD AGAINST TUBERCULOSIS BY THE "GRANCHER" SYSTEM.

BY DR. P. F. ARMAND-DELILLE,

Médecin des Hôpitaux de Paris, Secrétaire-Général de l'Œuvre Grancher.

MR. CHAIRMAN, LADIES AND GENTLEMEN,—It is for me an honour and a great pleasure to have this opportunity of speaking to you about the "Œuvre Grancher," and I will try to explain what is our

method for the preservation of childhood against tuberculosis, and what are the results after seventeen years of work.

The "Œuvre Grancher" is based on this fact—that everybody ought to know or be taught nowadays that tuberculosis is not an hereditary but a contagious disease. It is so, especially for children above all, if a case of pulmonary tuberculosis exists in the house. We know now, according to the experiments of my master, Prof. Calmette, that the number of the tuberculous bacilli is an important factor indeed—that the gravity of the infection depends on the number.

If a guinea-pig is inoculated with only a single tubercle bacillus he can absorb that germ and does not get contaminated, but if he receives more than ten bacilli at the same time, or if he receives two or three bacilli for several days, he develops tuberculous lesions. It is the same with the child. If he is only exposed to a slight contamination by the dust of the cities he presents a positive von Pirquet reaction, but can keep this without developing clinical lesions, but if he is exposed every day to a contamination by the proximity of a mother or a father having a consumptive cough and tubercle bacilli, he presents quickly a ganglionic primo-infection in the cervical or tracheo-bronchial gland, and after that either a generalised or local tuberculosis.

In statistics taken from 150 tuberculous families, a report of which I gave to the Congress of Rome in 1912, I proved that if the children remain at home with tuberculous parents, the tuberculosis morbidity among them is 60 per cent. and the mortality 40 per cent.

Grancher first had the idea of his method in 1900, when the Germans were covering their country with sanatoria. He saw very clearly that this was not all.

The sanatorium does take the sick father or mother, but it leaves very often the child in the most miserable conditions; what is more, the tuberculous patient, improved in health, returns home from the sanatorium and remains a germ-carrier, contaminating his surroundings.

Against tuberculosis Grancher remembered what Pasteur had done in his system to fight disease in the silkworm industry—taking the eggs from the contaminated area in order to preserve the breed.

In 1903, when he started his work, he described his general method thus: "When tuberculosis reigns in a poor house, and falls on the father or the mother, contamination of children is nearly fatal, so I thought that the best means of fighting against tuberculosis is to take away its prey."

In such a family the "Œuvre de Préservation" takes away the children while still healthy and sends them to the country, among healthy peasant families, where they remain till the age of thirteen, sometimes longer, because I am sure that a number of them will stay for good and found new peasant families.

Those provisions, as you will see, have become true in a wonderful degree.

The beginning of the work was rather difficult. Grancher asked some friends of his—physicians having their practice in rural districts—to find some peasant families who would undertake the care of children from tuberculous families.

These peasants were afraid to take into their home children from tuberculous parents, because they thought that these children would be hereditarily infected. But some of them, having full confidence in their doctor, accepted, and as the children were perfectly well and became red-cheeked in the open air, other peasants soon agreed to take charge of children.

This system has now been in force for seventeen years without any trouble and with great success.

How do we Select the Children ?

In the beginning it was the work of different charitable people ; now it is the visiting nurse of the dispensary who selects the children.

I need not explain to you here how our Calmette anti-tuberculosis dispensaries are run ; you know that we have begun to have numbers of them in France in the big cities like Paris, Lyons, etc., and also in a few departments.

When the visiting nurse is making the inquiry into the family of a tuberculous patient, she sends all the children to the dispensary for medical examination.

Some of them have often tuberculous lesions, have had tuberculous peritonitis, etc., and they are sent to seaside sanatoria for helio-thalassotherapie ; others have tracheo-bronchial adenopathia, and are sent to a preventorium, but the majority of them are still healthy, and do not present any clinical symptom of tuberculosis.

Only the latter are sent to our office, with the necessary chart, showing that the parents are tuberculous, with tubercle bacilli in the system, that the children have no other contagious disease, that they have been vaccinated against smallpox, that they have no adenoids, or have been operated on for adenoids.

Then they undergo a fresh examination by the medical staff of the Œuvre Grancher. If they are normal they are supplied with an outfit and sent to the country to peasant families.

Why do we place the Children in Families?

Because the placing in the family is the best from the point of view both of health and of morals. Indeed, you know the danger run in placing children in orphan homes or other institutions where they are more or less crowded; if a contagious disease breaks out in such a place the mortality may be very high.

Also from the moral point of view, the child finds a new family and a new home for a few years, and he is not only a "numero" (like many children in an orphanage), he is interested in all that his adopted parents are doing; he learns to work—the boy in the field, the girl in the garden, the kitchen or the laundry—and when he reaches the age of earning his living he has some idea of work, and very often chooses farming or gardening.

These families are specially selected by the doctor of the district from amongst the peasant proprietors who have fairly comfortable house and garden, who are healthy, and who possess the qualities suitable for the good up-bringing of children.

Before the decision is taken a visit is made by the secretary of the "Œuvre Grancher," who makes every year an individual supervision of all the placings. Very often in the year the children are seen by the visiting nurse, who accompanies the new-comers or brings back any of the children who may be called back by their parents.

In the beginning Prof. Grancher would not take children under three years old, because he was afraid that a few cases of infant mortality, which would be inevitable, would be considered as resulting from tuberculosis. But now that it has been proved that by this system the children are surely preserved from tuberculosis, we have organised a nursing centre in the country, for the babies of tuberculous mothers, under the permanent supervision of a special public health visiting nurse.

When the children are placed, they go to the public school of the small village, and become attached to the village church.

They remain in their peasant family, under the supervision of the country doctor, as long as it is necessary for the disappearance of contagion in their own family. This disappearance becomes

sometimes happily a cure, but more often the death of the tuberculous parent.

That demands an average of three years. But if the healthy parent, after the death of the tuberculous one, does not ask for the children to return home, we leave them in the country up to the age of thirteen, when they have completed their schooling.

At that age, either we give back the children to the parents to be sent to earn their living, or we place them in the country, especially in farms, as servants, with families of good reputation.

What are the Results of this System?

(1) *Results from the point of view of prevention.*—Out of 2300 children from Paris that the “Œuvre Grancher” has sent into the country, we have had only seven cases of tuberculosis with two deaths from meningitis three weeks after they had been placed. That makes 0·3 per cent. for morbidity instead of 60 per cent., 0·01 for mortality instead of 40 per cent. You see that practically it is the suppression of tuberculosis.

(2) *Moral results.*—The children, having a good training from fine country people, grow up honest and of good character; very few (only two out of 2300) have had to be sent to houses of correction.

(3) *Return to the land.*—Many of these children, who would either have died, or have been put to work in the big towns, develop a love for the rural life, and nearly 50 per cent. of them have definitely gone back to the land and have been transformed into healthy peasants; many of them, boys and girls, are now married in the country and have healthy children. Many of our boys have become soldiers; unfortunately some of them have been killed in the war.

Another important point of view is that of expense.

One year for a child in the country costs nearly 1000 francs, and for 3000 to 5000 francs we preserve a child against tuberculosis, and save a healthy social capital.

You must remember, in opposition to that, how much it costs to nurse a tuberculous patient in a sanatorium—more than 7000 francs a year—and you have to nurse him on an average for three years (that is, more than 20,000 francs), and you know that one out of three can really recover.

You know also that if he regains apparent good health he is always fragile.

Conclusions.

From these results you can see, Ladies and Gentlemen, that the experiment in social hygiene that Grancher started in 1903 has been completely successful.

The system, which originally started for the children from Paris, has rapidly been applied in many other cities in France. We have now more than twenty branches in Lyons, Marseilles, Bordeaux, Lille, Rennes, Strasburg, etc., and soon we will have one in each of our eighty-nine "departments" working in connection with the "Departmental Committee for Assistance to the Tuberculous" and complementary to the work of the Calmette dispensaries.

The "Œuvre Grancher" is a work of private charity, but the French Government realises its importance and gives a large grant to it, as does also the city of Paris and different towns where we have branches, also other anti-tuberculosis associations have imitated our system.

The fact that I have been honoured by being asked to give this address shows the interest that Sir Robert Philip takes in this system.

Many prominent men in France are interested in our work and are members of the Board of Directors. Some of them are here—Prof. Calmette and the other French delegates.

Since the death of the first President, Grancher, it is Dr. Roux, Director of the "Institut Pasteur," who has held this position. From the outset M. Léon Bourgeois has always done the Œuvre Grancher the honour of being its Vice-President. M. Honnorat, when he was Minister of Public Education, said that all the school-boys and girls must be interested in the children of the Œuvre Grancher.

If such men give part of their precious time to the work, it is because they consider that the Grancher system is at the same time the most useful, the least expensive, and the most radical and successful method of fighting tuberculosis. Indeed, it stopped in all families in which it was applied the invading march of tuberculosis, and everyone can see all the good that it is doing, all the ill that it prevents.

At the present moment the Œuvre Grancher is not yet fully developed; in France itself we have saved a few thousands of children, but we should have to deal with perhaps 100,000 children.

So we hope that in all civilised countries where tuberculosis

makes ravages, this system will be applied to save the innocent children who are the prey of this terrible disease.

VOTE OF THANKS.

The PRESIDENT OF THE INTERNATIONAL UNION (Sir ROBERT PHILIP) said: Sir Arthur Stanley, Ladies and Gentlemen,—It is a great privilege to propose a vote of thanks to Dr. Armand Delille for his delightful address. I think that all who have thought much about the subject will agree with me that the special value of the address is that the method described is scientifically sound, economically sound, and also socially and morally sound.

It is scientifically sound because it is really based on science. It is a realisation in the social sphere of what is sometimes termed the Bang system in relation to cattle, where you have the removal of the calf, born vigorous and sound, from the mother that is diseased. Experience shows that the calf so removed remains sound and healthy if you can keep it sufficiently separate for a sufficient period from the affected mother.

The principle involved is in keeping with an experiment from another side of the world. Long ago Dr. Trudeau, whose name is well known to many of us, showed, in connection with the inoculation of rabbits, that if you divided tuberculised rabbits into groups—I merely give you a rough outline of the observation—and allowed one group to move about in the free air, in the best possible surroundings, and shut up another group in closed hutches, the first group hardly developed tuberculosis at all, while the second went down rapidly with it. I might expand the point still further; what I want to illustrate is, that the system of Grancher, as just explained to us by Dr. Armand Delille, is scientifically sound, which is more than we can say of some other systems. (Applause.)

Further, he has shown us how economically sound the method is. In place of waiting until the tubercle bacilli have advanced in their deadly work and made the problem correspondingly difficult, the Grancher system transfers children betimes. By such a plan we not merely save the child's life and health, but we save the pocket of everyone concerned.

Once more, Sir, it seems to me that the system is socially and morally sound. Dr. Armand Delille has expanded this sufficiently. There can be no doubt that the child brought up in an infected home, with miserable, insanitary environment, has not the same chance in life, morally and spiritually any more than physically,

as the child who is transferred to a suitable home in the country may enjoy.

On those three grounds we shall all agree that Dr. Armand Delille has done us a great benefit by his address of to-day. I ventured to ask Dr. Armand Delille, when he said he would take part in one of the discussions of a more formal sort at the International Conference, if he would come to our Annual Meeting, where we would have a large audience interested in the subject from many points of view, and tell us about the Grancher system. The request has been abundantly justified by the result. (Applause.)

Lastly, Ladies and Gentlemen, before sitting down I should like to strike one other note, namely, How much of the best social work in all countries—and if the Frenchmen will allow me to say it, conspicuously in France—has been undertaken by men with largest scientific outlook and rigid scientific training, men who themselves are filled with that great humanitarian spirit which our revered past President, Monsieur Léon Bourgeois, so nobly represents. No man was more humane or large-hearted than Louis Pasteur, and no physician had larger outlook than the late Dr. Grancher, of whose methods we have heard to-day. Madame Grancher happily still lives, and I know she will value greatly not only our appreciation of her husband's excellent work, but likewise our appraisal of his moral and spiritual quality.

In this connection it seems natural to add that, in the successor of Monsieur Pasteur, as head of the Pasteur Institute in Paris—Monsieur Roux—we have another example of the sublime combination of the man of science with the man of spiritual discernment. When I mention that at this moment Dr. Roux, veteran in the scientific field, is President of the Œuvre Grancher of Paris, I have said enough.

I beg, Ladies and Gentlemen, with great heartiness, to propose a vote of thanks to Dr. Armand Delille for his very instructive and delightful address. (Applause.)

The resolution was carried by acclamation.

VII.

PROCEEDINGS OF COUNCIL OF INTERNATIONAL UNION AGAINST TUBERCULOSIS.

RESOLUTIONS OF COUNCIL OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, ADOPTED AT LONDON, 26th to 28th JULY, 1921.

The Council of the International Union, having been duly convened, met within the Institution of Civil Engineers, Westminster, S.W., the President (Sir Robert Philip) in the Chair.

The following Resolutions were adopted:

A.—Constitution and Bye-laws of the International Union.

1. RESOLVED that, before passing to the consideration of the Constitution and Bye-laws in detail, certain questions of policy be determined.

B.—Frequency of Conferences.

2. RESOLVED that it is undesirable to hold an International Conference every year.
3. RESOLVED that an International Conference be held every second or third year, as may appear desirable, and that, during each successive Conference, the Council shall determine and announce the proposed date of the following Conference.
4. RESOLVED that, with a view to immediate continuity, it be understood that, notwithstanding Resolutions 2 and 3, the next Conference will be held at Brussels in 1922 under the Presidency of Dr. Dewez, and the following Conference at Washington in 1924 under the Presidency of Dr. Theobald Smith.

C.—Headquarters of the Union.

5. RESOLVED that, for the present, a separate office for the International Union be not established, but use be made of the Tuberculosis Department of the League of Red Cross Societies at Geneva as *provisional* Headquarters of the Union, and the services of the Director of that Department as *provisional* Secretary of the Union, as kindly sanctioned by the Director-General of the League of Red Cross Societies, on the understanding that the correspondence and accounts of the International Union shall be kept entirely separate from those of the League of Red Cross Societies.

D.—Finance.

6. **RESOLVED** that, for the present, the expenditure of the International Union be limited to secretarial and similar charges and the publication of such 'Transactions' as the Council may authorise from time to time.
7. **RESOLVED** that, in order to meet such charges, the annual contribution of each country adhering to the Union be fixed at £4 (fr. 100, *or*) for each Member of Council, representing the given country on the Council, and £1 (fr. 25, *or*) for each ordinary member of the Union—the sums thus levied to be collected and remitted to the Treasurer of the International Union by the several National Associations or Governments concerned.

E.—Constitution and Bye-laws.

8. **RESOLVED** that the Constitution and Bye-laws of the International Union, as finally adjusted (*vide* p. 259), be adopted.
9. **RESOLVED** that the Constitution and Bye-laws of the International Union, now adopted, be circulated to the various National Committees or other National Representatives for consideration and endorsement.

F.—National Grants towards the Prevention of Tuberculosis.

10. **RESOLVED** that, whereas the world's death-rate from tuberculosis, although gradually declining, is still very high, and vast numbers of lives at the stage of their greatest usefulness are needlessly sacrificed to this disease, the International Union against Tuberculosis assembled in London, with representatives from forty nations of the world, urge all governments to vote more adequate sums of money to promote and foster preventive measures against tuberculosis.

G.—Medical Training in Tuberculosis.

11. **RESOLVED** that, considering the general insufficiency of practitioners in the knowledge of tuberculosis and the extreme importance of their being possessed of this knowledge, it is desirable that in the medical schools of all nations tuberculosis be the subject of special teaching, in order that physicians may be instructed in the precise diagnosis of the disease and in the means of combating it.

H.—Executive Committee.

12. RESOLVED that the Executive Committee of the Council as at present constituted continue in office until the Meeting of the International Union at Brussels in July, 1922, namely, Sir Robert Philip (President); Professor Léon Bernard (Secretary); Professor Calmette, Dr. Dewez, Dr. Irimescu and Dr. Gerald Webb; with Dr. A. de Peyer, Tuberculosis Department, League of Red Cross Societies, Geneva, as Acting Secretary.
13. RESOLVED that it be remitted to the Executive Committee to make arrangements for the next International Conference, at Brussels, in July, 1922, with the recommendation that the following subjects be included in the programme: namely (1) Tuberculosis in the Child—(a) before School Age, (b) during School Life; and (2) Anti-tuberculosis Prophylaxis in the Home by the Visiting Nurse.

I.—Votes of Thanks.

14. RESOLVED that the best thanks of the International Union be accorded to the National Association for the Prevention of Tuberculosis for their hospitable arrangements in connection with the Conference.
15. RESOLVED that the best thanks of the Conference be conveyed to the Institution of Civil Engineers for their kind permission to meet in the beautiful rooms of the Institution.
16. RESOLVED that cordial thanks be offered to the President (Sir Robert Philip) for his conduct in the Chair.

VIII.

INTERNATIONAL UNION AGAINST
TUBERCULOSIS.

CONSTITUTION AND BYE-LAWS.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

CONSTITUTION AND BYE-LAWS.

Article I.

There is hereby formed among the Nations signatory to the covenant of the League of Nations and the United States of America an International Union against Tuberculosis.

Article II.

The International Union against Tuberculosis has for its objects :

1. To establish a Federation amongst the national associations or organisations engaged in the campaign against tuberculosis in the various countries of the civilised world, to co-ordinate the efforts of those associations or organisations throughout the world, and to establish relations with international organisations or institutions dealing with health, in so far as they touch on tuberculosis.

2. To organise scientific conferences and congresses regarding tuberculosis.

3. To make comparative studies of the laws dealing with tuberculosis and all problems of public health relating thereto.

4. To provide for the collection of international statistics pertaining to tuberculosis.

5. To stimulate scientific and social investigations regarding the distribution, spread, prevention and treatment of tuberculosis in various countries and races.

6. To collect and distribute information to national organisations included in the Union on all questions concerning the scientific and sociological study of tuberculosis.

Article III.

The Headquarters of the International Union shall be located provisionally at Geneva.

The Union shall be convened every second or third year as may be determined by the Council of the Union.

At each Conference the Union shall elect a President-Elect who shall become President at the commencement of the next meeting of the Union. The President-Elect shall be selected from the members of the Union belonging to the country where the next Conference will be held. The President shall preside at the general meetings of the Conference and of the Council during his period of office.

Article IV.

The Union shall consist of Councillors, Ordinary Members, and Honorary Members.

1. *Councillors*.—The Councillors shall be nominated by the national anti-tuberculosis organisations of the several nations signatory to the covenant of the League of Nations and the United States of America. Every country shall be represented by two Councillors ; each country with more than 10,000,000 inhabitants shall be entitled to appoint an additional Councillor for each additional 5,000,000 inhabitants or part thereof. But the total number of Councillors from any one country shall not exceed five.

In countries where no central anti-tuberculosis organisation exists, the Councillors shall be nominated by the national government.

2. *Ordinary Members* shall be elected by the Council of the International Union on the recommendation of the national organisations or on the nomination of their governments.

3. *Honorary Members* shall be elected by the general meeting on the nomination of the Council.

Article V.

The International Union shall be directed and administered by a Council. The Council shall consist of Councillors who, if prevented from being present, may be represented by deputies duly nominated.

The Council shall elect from its own members an Executive Committee of five members for the arrangement and presentation of business and for the purpose of studying the various questions presented and of submitting reports.

The Executive Committee shall be responsible for the publication of the Transactions of the Union. The Executive Committee shall meet at least once a year.

The Council shall meet at least every second or third year immediately before the Conference. If necessary, the Council may be convened especially by the President.

The Council shall appoint the Secretary-General and Treasurer.

Article VI.

The Council shall submit to the Conference all measures deemed proper for the realisation of the purposes of the Union. The General Secretary, after consultation with the President, shall submit to the Council an annual report, including a financial statement. The Council shall determine the budget and approve the accounts. The Council shall also decide the place and date of the next general meeting.

Article VII.

The Conference of the Union, to which shall be summoned all the councillors and ordinary members, shall receive reports regarding the work of the Union and approve any modification of the constitution which may be proposed. Such amendment can only be determined by a two-thirds majority of the members present at the next Conference after due intimation to all the members.

Article VIII.

The expenditure of the Union shall be met by the ordinary subscriptions and by all other contributions (official or voluntary).

The Annual Contribution of each country adhering to the Union shall be fixed at £4 (fr. 100 in gold) for each member of Council representing the given country on the Council, and £1 (fr. 25 in gold) for each ordinary member of the Union.

The national organisations or participating governments shall be responsible for the collection of the subscriptions to the Union and for the remittance of such subscriptions to the Treasurer of the Union.

National organisations or participating governments, who for three years have failed to remit their contribution, shall be considered as no longer members of the Union.

STATUTS ET RÈGLEMENTS DE L'UNION INTERNATIONALE CONTRE LA TUBERCULOSE.

Article premier.

Il est formé entre les pays ayant adhéré au pacte de la Société des Nations et les États-Unis d'Amérique une *Union Internationale contre la tuberculose*.

Article II.

L'Union Internationale contre la tuberculose a pour objet :

1° D'établir une Fédération entre les Associations ou Organisations nationales de lutte contre la tuberculose dans les divers pays du monde civilisé ;

De coordonner les efforts de ces Associations ou Organisations antituberculeuses des diverses nations ;

D'établir des ententes avec les organisations ou institutions internationales d'hygiène en ce qui touche particulièrement la tuberculose ;

2° D'organiser des conférences et des congrès scientifiques sur la tuberculose ;

3° D'étudier la législation comparée relative à la tuberculose et à tous les problèmes d'hygiène sociale qui s'y rattachent ;

4° De rassembler une documentation de statistique internationale en ce qui concerne la tuberculose ;

5° De provoquer des enquêtes scientifiques et sociales sur la distribution, l'extension, la prévention et le traitement de la tuberculose dans les différents pays et races ;

6° De recueillir et de faire connaître aux organisations adhérentes des renseignements sur toutes les questions concernant l'étude scientifique et sociale de la tuberculose.

Article III.

Le siège de L'Union Internationale est provisoirement situé à Genève.

L'Union se réunit tous les deux ou trois ans, suivant qu'il en est décidé par le Conseil de direction de l'Union.

A chaque réunion, l'Union désigne le Président qui entrera en fonction lors de l'Assemblée Générale suivante de l'Union.

Le Président ainsi désigné est choisi parmi les membres de l'Union appartenant à la nation où se tiendra la réunion suivante. Il préside l'Assemblée Générale et le Conseil de Direction pendant a période où il est en fonction.

Article IV.

L'Union Internationale se compose de Membres Conseillers, de Membres Titulaires et de Membres d'Honneur.

1° *Membres Conseillers* : Les Membres Conseillers sont désignés par les organisations antituberculeuses de chacune des nations ayant adhéré au pacte de la Société des Nations et des États-Unis d'Amérique. Chaque pays est représenté par deux Membres Conseillers; tout pays comptant plus de dix millions d'habitants peut déléguer un membre supplémentaire par fraction de cinq millions d'habitants. Le nombre total de Membres Conseillers par pays ne peut en tout cas dépasser cinq.

Dans les pays où il n'y a pas d'organisation centrale pour la lutte contre la tuberculose, les Membres Conseillers sont désignés par le Gouvernement de ces pays.

2° *Membres Titulaires* : Les Membres Titulaires sont élus par le Conseil de Direction de l'Union Internationale sur la présentation des Organisations nationales ou des Gouvernements adhérents.

3° *Membres d'Honneur* : Les Membres d'Honneur sont élus par l'Assemblée Générale sur la proposition du Conseil de Direction.

Article V.

L'Union Internationale est dirigée et administrée par un *Conseil de Direction*. Ce Conseil se compose des Membres Conseillers qui, en cas d'empêchement, peuvent se faire représenter par les délégués dûment accrédités.

Le Conseil de Direction élit parmi ses propres membres un *Comité Exécutif* de cinq membres chargé d'expédier et de présenter les affaires, d'étudier les différentes questions qui lui sont confiées et de les rapporter.

Le Comité Exécutif assure la publication des travaux de l'Union. Il se réunit au moins une fois par an.

Le Conseil de Direction se réunit au moins tous les deux ou trois ans, immédiatement avant l'Assemblée Générale. S'il y a lieu, il se réunit spécialement sur la convocation de son Président.

Le Conseil de Direction nomme le Secrétaire Général et le Trésorier.

Article VI.

Le Conseil de Direction propose à l'Assemblée Générale toutes les mesures qu'il juge propres à la réalisation des buts poursuivis par l'Union Internationale. Le Secrétaire Général, après avoir consulté le Président, soumet au Conseil de Direction un rapport annuel renfermant un compte rendu financier. Le Conseil de Direction

établit le budget et approuve les comptes. Il fixe aussi le siège et la date de l'Assemblée Générale suivante.

Article VII.

L'Assemblée Générale de l'Union, à laquelle sont convoqués tous les Membres Conseillers et Titulaires, entend le rapport sur les travaux de l'Union et approuve les modifications des statuts qui pourront être proposées. Ces modifications ne peuvent être adoptées qu'à la majorité des deux tiers des membres présents à l'Assemblée Générale suivante, après avoir été dûment notifiées à tous les membres.

Article VIII.

Les dépenses de l'Union seront couvertes par les cotisations ordinaires et par toutes autres contributions (officielles ou privées).

La contribution annuelle de chaque nation adhérente à l'Union sera fixée à L. 4 (100 fr. or) par Membre du Conseil de Direction représentant cette nation au Conseil et à L. 1 (25 fr. or) par Membre Titulaire de l'Union.

Les Organisations nationales ou les gouvernements affiliés seront responsables du recouvrement des cotisations dues à l'Union et de leur paiement au Trésorier de l'Union.

Les Organisations nationales ou les Gouvernements affiliés, qui pendant trois ans n'auront pas payé leur cotisation, seront considérés comme n'étant plus membres de l'Union Internationale.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

Third International Conference.

BRUSSELS, 11th to 13th July, 1922.

SUBJECTS FOR DISCUSSION:

1. Tuberculosis in the Child—
 - (a) Before School Age;
 - (b) During School Life.
2. Anti-Tuberculosis Prophylaxis in the Home by the Visiting Nurse.
3. The Work of the Tuberculous during and after Cure.

Visits will be organised to the different anti-tuberculosis establishments in Belgium.

The subscription for Ordinary Members to attend this Conference is £1.

Those who wish to become Members of the Conference are requested to send in their names and addresses with subscription by 26th June to

THE SECRETARY, N.A.P.T.,

20, HANOVER SQUARE,

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May, 1922.

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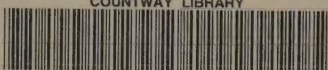


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